DATALOGIC™

SOAR WITH FALCON™

Falcon® 4400 Series

with Windows® CE

Falcon 4410
26-Key model

Falcon 4420
48-Key model

Falcon 4410
52-Key NU model

Product Reference Guide

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Disclaimer

Datalogic has taken reasonable measures to provide information in this manual that is complete and accurate, however, Datalogic reserves the right to change any specification at any time without prior notice.

Patents

This product may be covered by one or more of the following patents:
4,861,972 • 4,866,257 • 4,879,456 • 5,198,649 • 5,208,449 • 5,212,372 • 5,247,161 • 5,311,000 • 5,440,110 • 5,481,098 • 5,493,108 • 5,508,505 • 5,664,231 • 5,671,374 • 5,686,716 • 6,041,374 • 6,412,698 • 6,415,978 • 6,454,168 • 6,478,224 • 6,513,714 • 6,536,670 • 6,561,427 • 6,585,157 • 6,923,377 • 7,108,170 • D377345 • CA2,188,399 • Other U.S. and Foreign Patents Pending.

Table of Contents

NOTES

Preface: About this Guide

How to Use this Manual

This Product Reference Guide contains comprehensive basic user instructions for the Falcon 4400 Series mobile computer software, batteries, dock, serial cable, data transfer, as well as advanced user information such as bar code configuration and parameters. This section of the manual provides an overview of the manual's contents and organization.

Document Overview

This document contains the following material:

- This Preface provides an overview of the contents for each chapter, and describes document style conventions.
- Chapter 1, Batteries and Power, discusses checking battery power, power conservation, battery installation, battery charging with a dock or battery charger, battery storage, battery disposal, and resetting the mobile computer.
- Chapter 2, Configuring the Falcon, uses the control panels to adjust touchscreen calibration, date and time, display backlight/contrast, volume/sounds, scanner, power, and memory.
- Chapter 3, Software Applications, covers flash memory, installing, selecting, using, and removing applications, entering data, and using the soft input panel with Inbox, Internet Explorer, and Word Pad.
- Chapter 4, Networks, Communications, and Connections, describes installing, setting up, and using ActiveSync and Networking.
- Appendix A, Accessories, describes the Accessories, such as docks, battery chargers, holsters, and soft cases available for the Falcon.

- Appendix B, Falcon® Desktop Utility (FDU) allows Windows administrators to configure Windows® CE Falcons to control individual user access.
- Appendix C, Configuring the Web Server, describes configuring the Falcon to work with a Web Server.
- Appendix D, SNMP Interface, describes SNMP (Simple Network Management Protocol) concepts, MIB (Management Information Base) files, and provides additional resources.
- Appendix E, Cable and Connector Configurations contains pinout information, to create standard interface cables for use in interconnecting the Dock to power and/or peripheral devices.
- Appendix F, Programming Parameters, provides the programmable settings for the Falcon.
- Appendix G, Programming Bar Codes, provides bar codes for common setup parameters for programming the Falcon.
- Appendix H, Maintenance, describes Falcon maintenance, provides a list of error messages, and gives information on contacting Datalogic Mobile for technical support.
- Appendix H, Glossary, is a glossary of terms used in this manual that you may not be familiar with that are specific to Windows® CE and the mobile computer.

Registering Your Datalogic Mobile Product

Datalogic Mobile values your feedback. Please take a few moments and complete the Product Registration form located on our website. Registering your products ensures that you will be informed of the latest product news, technical specifications, software updates and other future developments from Datalogic Mobile.

Document Conventions

Formatting conventions are used throughout this guide to provide a consistent method for representing screen shots, command entries, and keyboard characters. This guide also provides special conventions for notes and cautions, information of high interest.

NOTES contain information necessary for properly diagnosing, repairing and operating the terminal.

CAUTION

The CAUTION symbol advises you of actions that could damage equipment or property.

WARNING

A WARNING symbol calls attention to actions that could result in personal injury.

Keystrokes. Filenames, paths, field selections from a pull-down list, and data or keystrokes entered by the user are shown in this `monospaced` typeface.

Windows Controls. Windows controls including command bar sequences, prompts, dialog boxes, fields, pull-down lists, check boxes and radio buttons are printed in this **bold** typeface.

Portable Keys

Keys on the Falcon are bracketed by “greater than” and “less than” symbols (**< >**) to distinguish them from keys on the PC.

<F1> — <F19> Keys. The Function keys, such as **<F1>**, refers only to keys on the Falcon.

<ENTER> Key. To differentiate the **<ENTER>** key on the portable from the **Enter** key on the PC’s keyboard, portable keys are formatted with “greater than” and “less than” symbols: **<ENTER>**.

Stylus Actions

Stylus actions apply to the Falcon only; most PCs use a mouse as an input device.

Tap or Select. Tap the display screen once with the stylus to activate a specific button or select an item from a pull-down list.

Double-Tap. Tap the stylus twice rapidly in the same location to open an application.

Tap and Hold. Tap and hold the stylus to view the context menu.

Refer to the Quick Reference Guide (QRG) for more information on using a stylus with the Falcon.

Mouse Actions

Applies to the software installation portions of this document using a PC; the Falcon comes equipped with a stylus. Refer to Stylus Actions (above), or see the QRG for more information.

Click or Select. Press and immediately release the left mouse button without moving the mouse. Clicking is used to select specific buttons on various forms and tables.

Double-Click. Click the left mouse button twice in rapid succession. Used to initiate an application.

Right Click. Press and hold the right mouse button without moving the mouse.

Select. Click and release the left mouse button to choose an item or items from a pull-down list.

Chapter 1
Batteries and Power

Overview

This section contains the following topics:

Suspend Mode

The Falcon will go into a suspend or sleep mode when it is idle for a period of time. This duration can be customized using the **Power** control panel (refer to "Power Off Tab" on page 2-30. Suspend mode works and looks just like you have turned the unit off. Press **<Power>** to suspend (put to sleep) the Falcon. Press **<Power>** again for the Falcon to resume its previous state.

Use the **Battery Power** control panel to set the idle duration and the initiation of suspend mode. These features save battery power when the Falcon is not in use. Refer to "Power Off Tab" on page 2-30 for more information.

Suspending

The following conditions will put the unit into suspend (sleep) mode:

1. When the unit is on, press **<Power>** for 0.5 second to initiate suspend mode.
2. When the sleep timer expires, indicating that there has been no use for a specified period of time.
3. A discharged battery pack.

Resuming

Use one of the following methods to resume (wake up the Falcon):

- Press **<Power>** to resume (wake up).
- Put the Falcon into a dock.
- Press the **<Scan Trigger>** to wake up the unit (handled version only).

When a battery pack is fully discharged while the unit is in suspend mode, the Falcon remains in the suspended mode until the battery pack is charged or external power is supplied via the dock or a power cable.

Battery Warnings and Cautions

WARNING

Do not discharge the battery using any device except for the Falcon. When the battery is used in devices other than the Falcon, it may damage the battery or reduce its life expectancy. If the device causes an abnormal current to flow, it may cause the battery to become hot, explode or ignite and cause serious injury.

Lithium-Ion battery packs may get hot, explode or ignite and cause serious injury if exposed to abusive conditions. Be sure to follow the safety warnings listed below:

- **Do not place the battery pack in fire or heat.**
- **Do not install the battery pack backwards so the polarity is reversed.**
- **Do not connect the positive terminal and negative terminal of the battery pack to each other with any metal object (such as wire).**
- **Do not carry or store the battery pack together with metal objects.**
- **Do not pierce the battery pack with nails, strike it with a hammer, step on it or otherwise subject it to strong impacts or shocks.**
- **Do not solder directly onto the battery pack.**
- **Do not expose the battery pack to liquids, or allow the battery to get wet.**

In the event the battery pack leaks and the fluid gets into your eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated, the battery fluid could cause damage to the eye.

CAUTION

Always charge the battery at 32°–113°F (0°–45°C) temperature range.

If you remove the battery pack or it becomes completely discharged, there is a 30 minute window in which to insert a charged battery pack before the backup battery fails. If your backup battery completely discharges, the contents of the RAM memory will be lost. If your back-up battery is less than fully charged, there is proportionally smaller window of time available.

Use only the authorized power supplies, battery pack, chargers, and docks supplied by your Datalogic Mobile reseller. The use of any other power supplies can damage the Falcon and void your warranty. Refer to Appendix A for the correct Power Supplies and Accessories.

Do not disassemble or modify the battery. The battery contains safety and protection devices, which, if damaged, may cause the battery to generate heat, explode or ignite.

Do not place the battery in or near fire, on stoves or other high temperature locations. Do not place the battery in direct sunlight, or use or store the battery inside unventilated areas such as cars in hot weather. Doing so may cause the battery to generate heat, explode or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.

Do not place the battery in microwave ovens, high-pressure containers or on induction cookware.

Immediately discontinue use of the battery if, while using, charging or storing the battery, the battery emits an unusual smell, feels hot, changes color or shape, or appears abnormal in any other way.

Datalogic Mobile recommends annual replacement of rechargeable battery packs to ensure maximum performance.

Battery Disposal

If you must dispose of a battery pack, please follow the CAUTIONS below:

CAUTION

Use only a battery pack supplied by a Datalogic Mobile reseller for this device.The use of other battery supplies can damage the Falcon and void your warranty. Contact your reseller to for the correct power supplies; view your options under "Battery Pack" on page A-2 or the Datalogic Mobile website.

CAUTION

When the battery pack is worn out, insulate the battery pack terminals with adhesive tape or similar materials before disposal.

Recycle Lithium-Ion Batteries.

Do not throw Lithium-Ion Batteries in the trash

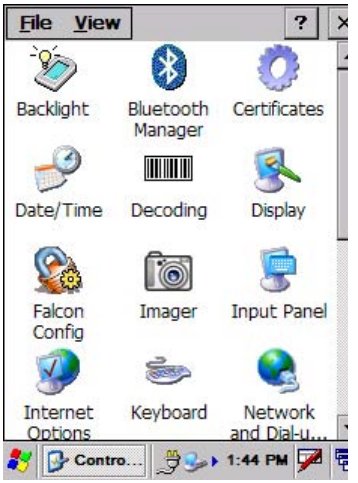
Please reference your local regulations for any further guidelines about battery disposal.

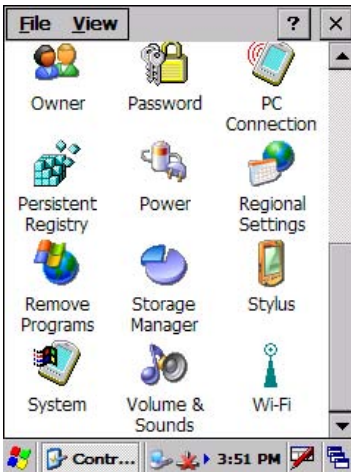
Chapter 2
Configuring the Falcon

Overview

This section contains the following topics on configuring your Falcon. Most control panels are accessed by selecting/tapping **Start > Settings > Control Panel**.

Control Panels





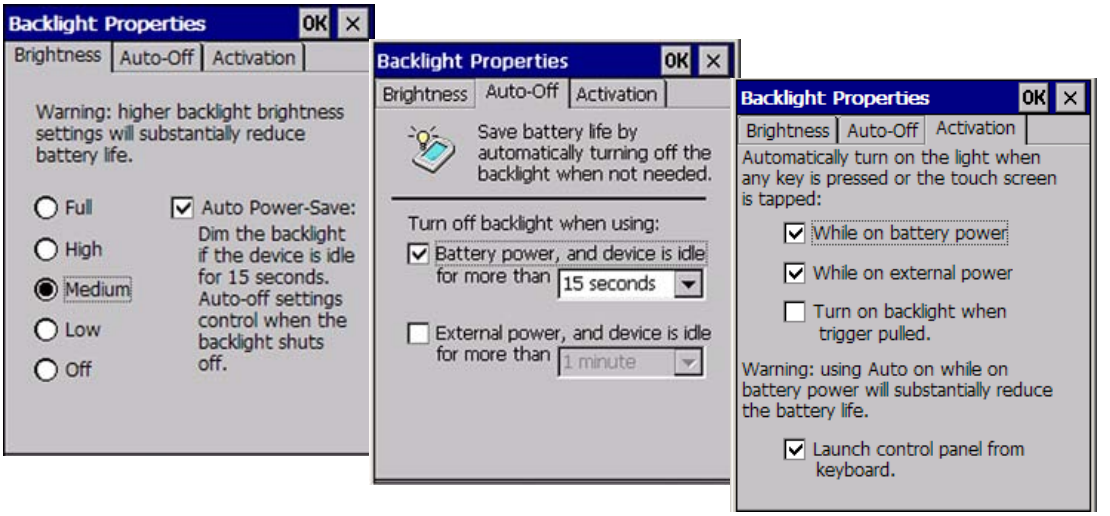
Backlight

Increasing backlight brightness can cause the battery pack to discharge at a faster rate. The battery discharge rate decreases with a decrease in backlight usage.

To change the **Backlight** settings, complete the following steps:

1. Select **Start > Settings > Control Panel > Backlight** to open the **Backlight** control panel. Some Falcon keypads also provide keyboard shortcuts to launch the **Backlight** control panel:
   - On the 26-key model press: **<Fn>+<Backlight>** (☼).
   - On the 48-key model press: **<Fn>+<Backlight>** (☼).
   - On the 52-key model press: **<Fn>+< . >**.
2. On the **Brightness** tab (refer to Figure 2-1), select one of the five (5) radio buttons to adjust the brightness to the desired setting by tapping it with the stylus. You can also use the **<UP>** and **<DOWN>** arrow keys to adjust this setting.
3. Auto Power-Save dims (rather than turning off) the backlight after 15 seconds of inactivity. This features does not change the behavior of the Auto-Off Settings. (Refer to "Power Configuration" on page 2-30).

Figure 2-1. Backlight Control Panel & Brightness



4. On the **Auto-Off** tab, enable the desired option checkbox and select the desired options from the pull-down lists (refer to Figure 2-1).
5. On the **Activation** tab, just tap the checkbox(es) to enable or disable them (refer to Figure 2-1):
   - Set the backlight to turn on automatically when any key is pressed or the touchscreen is tapped, either while on battery or external power.
   - Turn on the backlight when the trigger is pulled.
   - Deselect Launch Control Panel from the Keyboard to turn off the ability to open the **Backlight** control panel with a key sequence.

Using Auto-on while running from battery power will cause the battery pack to discharge at a faster rate. The battery discharge rate decreases with a decrease in backlight usage.

6. To exit and save your modifications, tap **OK** on the command bar, or press **<Enter>** on the keypad.

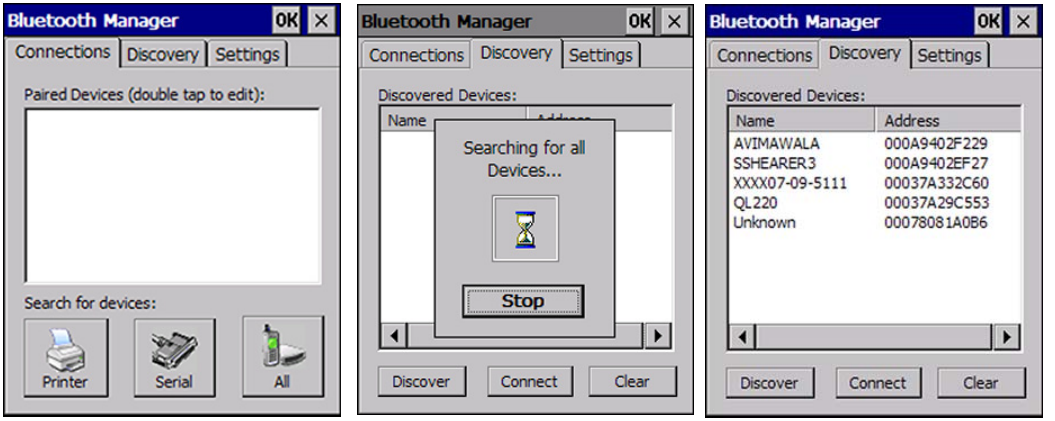
Bluetooth Manager

Search for device

1. Select **Start > Settings > Control Panel > Bluetooth Manager** to open the **Bluetooth** control panel.
2. Search for the type of Device(s) you want to connect to by tapping **Printer, Serial, or All**. The Falcon will search for Bluetooth Devices within range.
3. If you attempt to set up a connection when the Bluetooth Radio is disabled, you will receive a message reminding you that the radio is turned off, and asking you if you want to turn it on. Tap **Yes** if you need to enable the Bluetooth Radio.

Once searching is complete, Bluetooth Device Profiles will be displayed in the Discovery tab. You can set up a connection to a device on the list, or clear it from the list by tapping the **Clear** button.

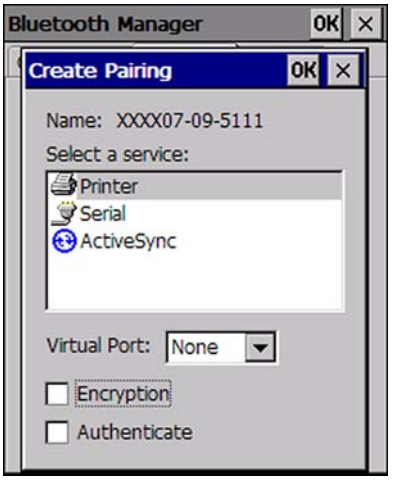
Figure 2-2. Searching for a Bluetooth Device



Connect to a Bluetooth Device

1. From the list of available devices, double tap the one you want to activate, or select and then tap **Connect**.

2. The resulting dialog will display services that are available on the device.



Select the service you want to connect to. The following table shows the icons that display for different types of service.

Table 2-1. Bluetooth Device Icons

Icon	Service
	Dialup Networking
	Printer
	File Transfer Protocol (FTP) Object Exchange (OBEX)
	Object Push (OPP) Object Exchange (OBEX)
	ActiveSync
	Human Interface Device (HID) - Keyboard
	Serial

Virtual Port allows you to specify the incoming port, which is used to communicate serially with an incoming device just as if it were a physical COM port. This option is available only if you have selected a Printer or Serial service.

You can also select **Encrypt** or **Authenticate** from the Bluetooth control panel to apply or modify those settings.

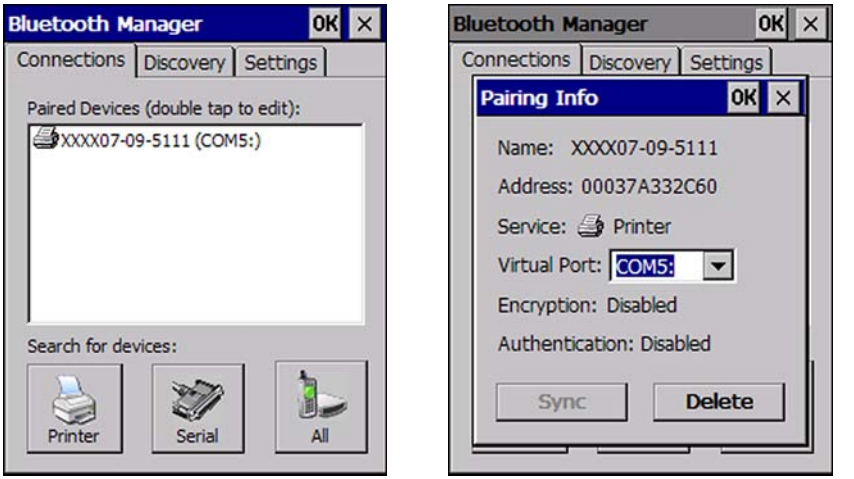
1. To require Authentication, tap the checkbox, then tap **OK**.
2. The Authentication Request dialog will then open, requesting that you enter a PIN. Use the Input Panel to type in the PIN.
3. Tap **OK** to complete.

The dialog will also appear when an Authentication request is received from another device.

Viewing or Deleting Paired Devices

Once you have set up a Pairing, you can view the settings by double-tapping its name from the Connections tab. Tap the arrow to change the Virtual Port, or Delete to remove the device pairing. Tap Sync to initiate a Sync (available only if the service is an ActiveSync connection).

Figure 2-3. Pairing Info



The icons displayed in the taskbar at the bottom of your Falcon's screen will show you the state of the Bluetooth connection, as shown in Table 2-2.

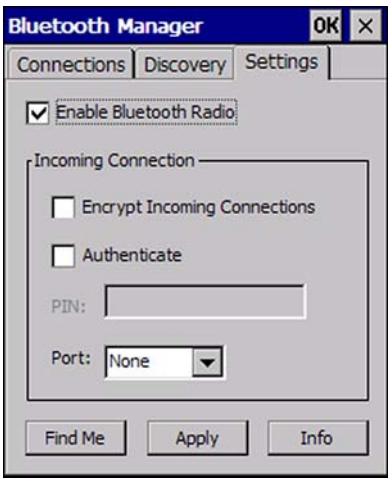
Table 2-2. Bluetooth taskbar icons

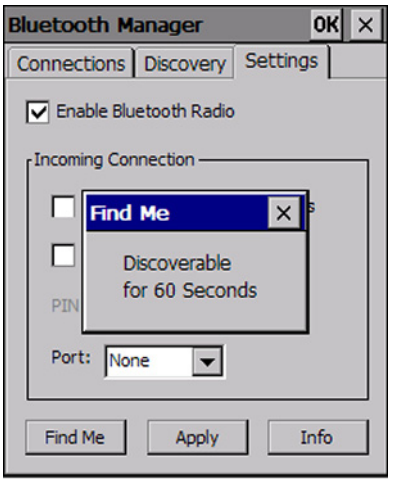
Icon	Name	Description
	Disabled Icon	Indicates that the Bluetooth has been disabled.
	Unpaired Icon	Indicates that the Bluetooth radio is on but the device is currently not paired to another.
	Paired Icon	Indicates that the Bluetooth radio is on and the device is paired with at least one other device.
	Discoverable	Indicates that the device is discoverable by other Bluetooth devices.

Settings

The **Settings** tab allows you to enable or disable the Bluetooth radio and specify settings for Incoming Connections.

Tapping **Find Me** will make the Falcon available to other Bluetooth devices for 60 seconds, allowing them to set up a connection.





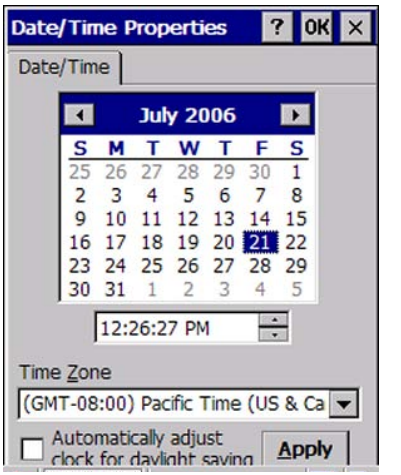
Tap **Apply** to apply the settings you have selected.

Certificates

Certificates are used by some applications for establishing trust and to secure communications. See the Microsoft Windows CE help on your Falcon unit for further information about Certificates.

Date and Time

In this control panel, you can change the year, month, date, time, time zone, or select automatic adjust for Daylight Savings Time. To set or change the date and time:



1. Select **Start > Settings > Control Panel > Date/Time**.
2. Select the month to open a pull-down list of months or tap the arrow buttons on either side of the month to increase or decrease the month.
3. To change the year, select the year to open a numeric dial. Select the up arrow to increase the value; select the down arrow to decrease the value. Or you can type a new year value in the field.
4. To change the time, select the hour, minute, seconds, or AM/PM and select the up arrow to increase the value; select/tap the down arrow to decrease the value. Or you can type a new time value in the field.
5. Select your correct time zone from the pull-down list.
6. To automatically adjust the clock for Daylight Savings Time, enable the checkbox at the bottom of the screen.
7. Select **Apply** to save your changes and make additional modifications.
   - Select **OK** to save your changes and exit **Date/Time Properties**.
   - Select/tap the close button to exit without saving your changes.

Decoding

You can configure the Falcon's decoding options by tapping on **Start > Settings > Control Panel > Decoding**. Decoder configuration can also be accomplished for large numbers of terminals using **FMU** (Falcon Management Utility).

There are two sections in the **Decoding** control panel, each containing additional pages. There are six General Configuration pages and multiple Bar Code symbology pages.

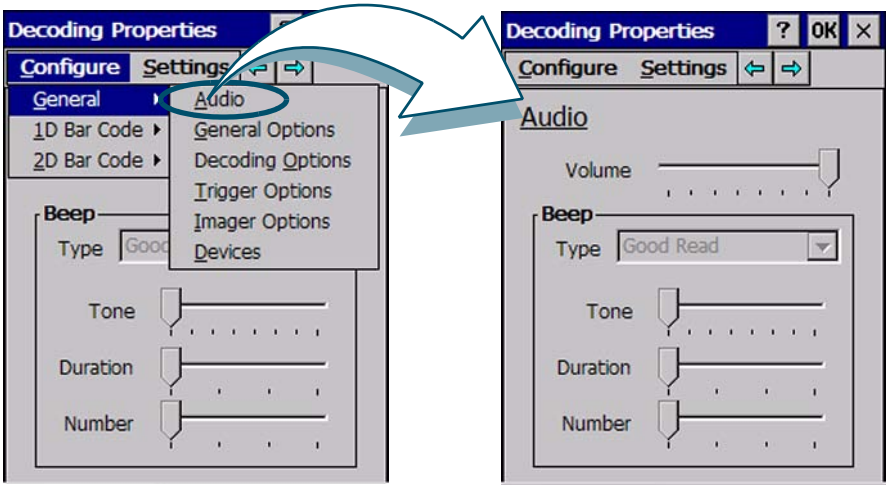
Other decoding parameters are described in Programming Parameters, starting on page F-1; bar code settings are provided in Programming Bar Codes, starting on page G-1.

Configuration Control Panels

Select the desired configuration from the following options shown in Figure 2-4, and the other **Decoding Properties** figures on the following pages.

Use the pull-down menus or tap the left and right arrow keys to navigate the different pages of the **Configure** utility.

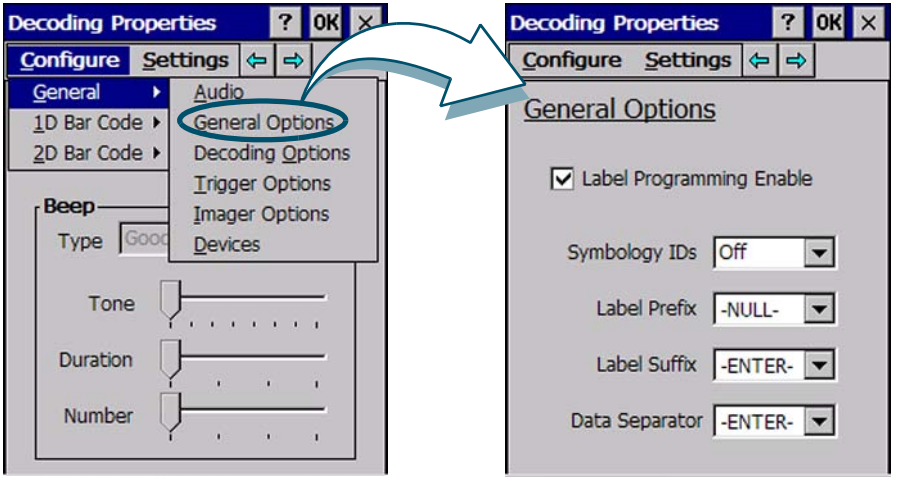
Figure 2-4. Decoding Properties: Audio



To view other configuration options, select **Configure > General** from the menu

- **Audio**: Sets volume, tone, duration, and number of various types of beeps.

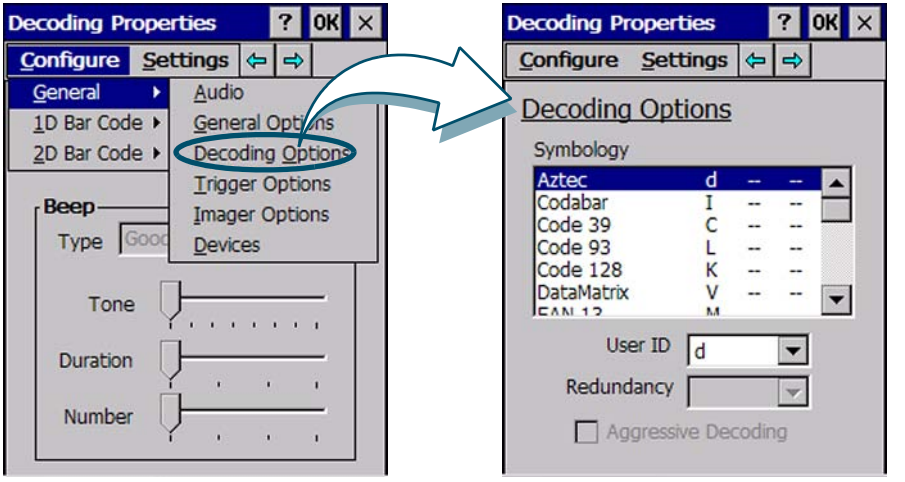
Figure 2-5. Decoding Properties: General Options



To view other configuration options, select **Configure > General** from the menu

- **General Options:** Select from Label Programming Enable, Symbology IDs, Label Prefix, Label Suffix, and Data Separator options.

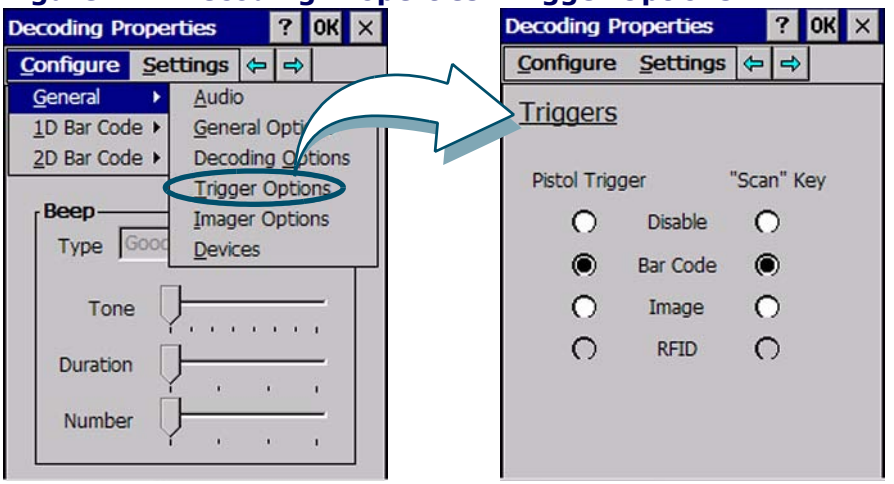
Figure 2-6. Decoding Properties: Decoding Options



To view other configuration options, select **Configure > General** from the menu

- **Decoding Options:** Set the **User ID** character associated with a symbology, the **Redundancy** and select **Aggressive Decoding** when available.

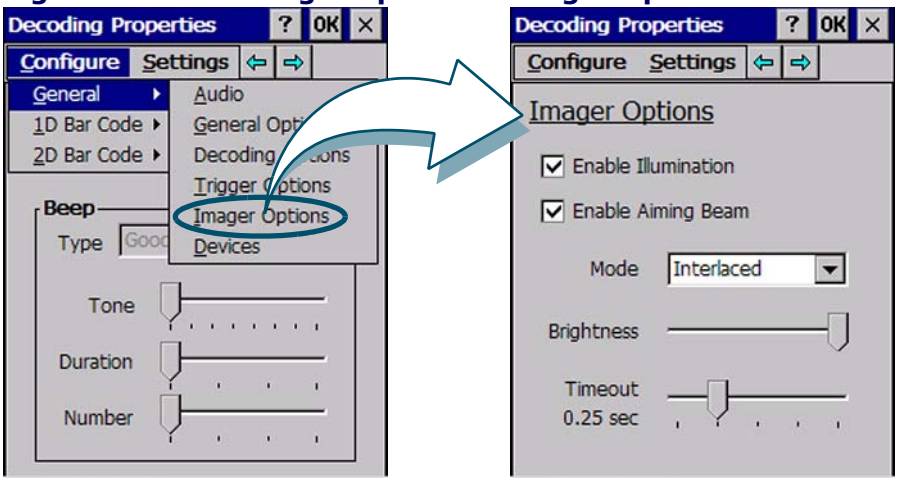
Figure 2-7. Decoding Properties: Trigger Options



To view other configuration options, select **Configure > General** from the menu

- **Trigger Options:** Select from Pistol Trigger and Scan Key enable for Bar code, Image, and RFID (available in future versions). Select the desired radio buttons to define the button functions. Available items will vary depending on the model.

Figure 2-8. Decoding Properties: Imager Options

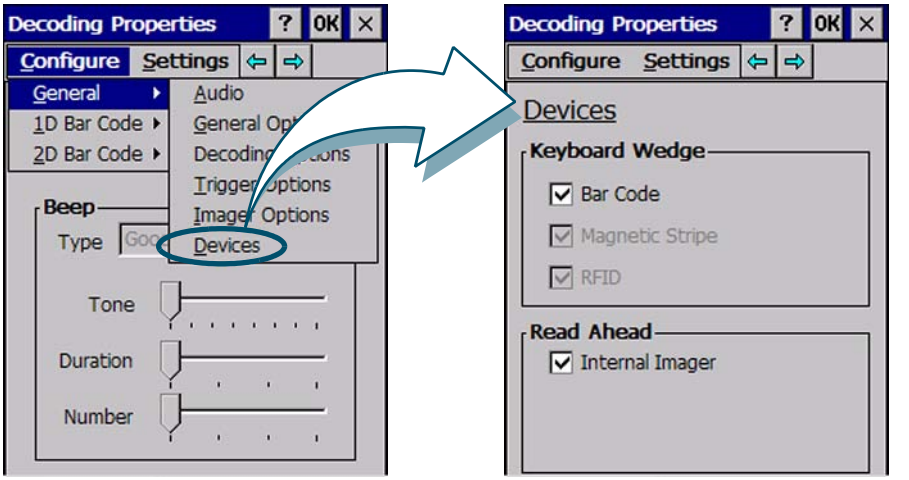


To view other configuration options, select **Configure > General** from the menu

- **Imager Options**: (Models with Imaging module only). Enable/Disable Illumination and the Aiming Beam for Imaging. Mode lets you select

between **Concurrent** (the aiming beam and the illumination beam turn on at once); and **Interlaced** (the aimer beam and illumination alternate being on). Set **Brightness** and **Timeout** properties using the sliders.

Figure 2-9. Decoding Properties: Devices



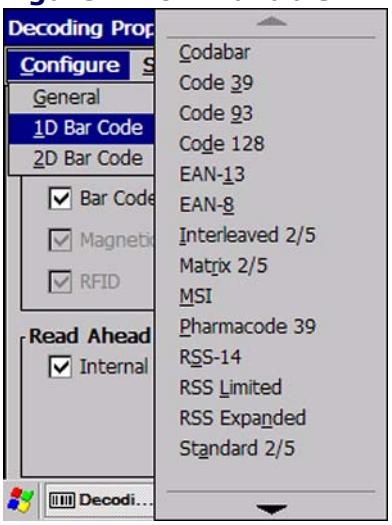
To view other configuration options, select **Configure > General** from the menu

- **Devices:** Enable the keyboard wedge for bar code scanner, Magnetic Stripe Reader, RFID, and enable Read-Ahead for attached devices.

Bar Code Symbology Pages

Use the pull-down menus from **Configure > 1D Bar Code** or **2D Bar Code**, or tap the left and right arrow keys to navigate the different pages of the bar code symbology pages. Each bar code symbology opens to its own page, as shown in Figure 2-11 on page 2-13.

Figure 2-10. Available 1D Bar Code Symbologies



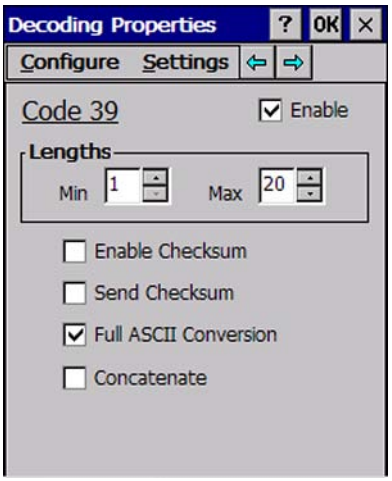
Codabar	Pharmacode 39
Code 39	RSS-14
Code 93	RSS-Limited
Code 128	RSS-Expanded
EAN-13	Standard 2/5
EAN-8	Trioptic
Interleaved 2/5	UPC-A
Matrix 2/5	UPC-E
MSI	UPC/EAN Extensions

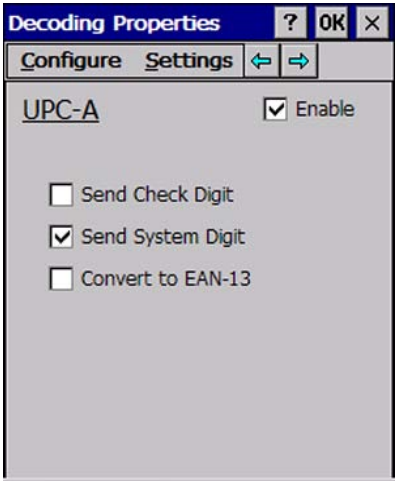
See Appendix G for details on parameters available for each symbology.

Refer to the sample symbology control panels in Figure 2-11 for examples of the types of fields and options you can modify.

Decoding parameters are described in Programming Parameters, starting on page F-1; bar code settings are provided in Programming Bar Codes, starting on page G-1.

Figure 2-11. Common Symbologies: Code 39 and UPC-A

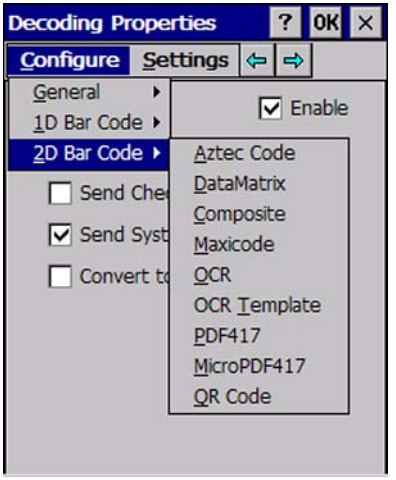




- **Code 39**: Select from enable, min/max lengths, enable checksum, send checksum, and Full ASCII conversion.
- **UPC-A**: Select from Enable, Send Check Digit, and Send System Digit.

2D Bar Code Symbologies

If you have the 2D Imager module installed, the following additional symbology options are also available:



Aztec Code	OCR
Data Matrix	OCR Template
Composite	PDF417
Code 128	MicroPDF417
MaxiCode	QR Code

See Appendix G for details on parameters available for each symbology.

Refer to Figure 2-11 for an example of the types of fields and options you can modify.

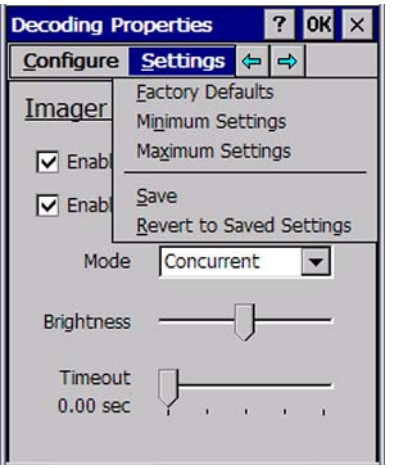
Other decoding parameters are described in Programming Parameters, starting on page F-1; bar code settings are provided in Programming Bar Codes, starting on page G-1.

Settings

Select from the **Settings** menu to restore previous configurations and/or other available default settings. Choose from:

- Factory Defaults
- Minimum Settings
- Maximum Settings
- Save (New Settings)
- Reverts to Saved Settings

The settings are saved when you select/tap **OK**.



Display Configuration

To change the default Background or Appearance (Windows Color Scheme), select **Start > Settings > Control Panel > Display**.

Background

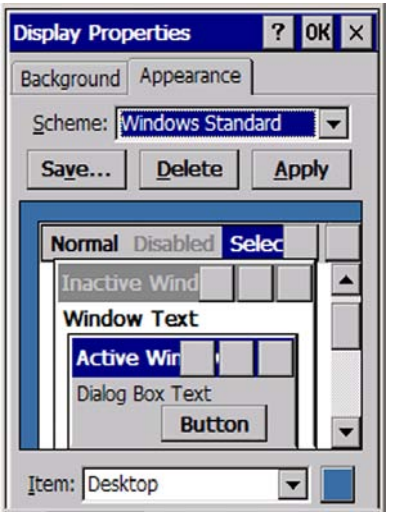
To change the **Background** image:

1. Select **Start > Settings > Control Panel > Display**.
2. Place a new image in the **Windows** directory. This file must be exactly 240 pixels wide by 320 pixels high.
3. The current file is located in the Windows directory with the Datalogic logo file named DeskLogo.bmp.
4. Select the new file name by using **Browse**.

Appearance

To change the default Windows color scheme:

1. Tap the **Appearance** tab.
2. Tap the **Scheme** pull-down list and select a new Windows color scheme if desired.
3. Tap **OK** on the control bar, or press **<Enter>** on the keypad.



Falcon Config

Tap **Start > Settings > Control Panel > Falcon Config** to access configuration utilities such as the Falcon Management Utility (FMU) and Falcon Desktop Utility (FDU) settings. See Falcon® Desktop Utility for Windows® CE, starting on page B-1, for complete information on FDU.

Falcon Management Utility (FMU)

The Falcon Management Utility (FMU) is the easiest method to use to configure multiple Falcons, especially if you have an enterprise-wide deployment. A copy of FMU is shipped with all Falcon Windows CE units. For complete information on FMU, refer to the *FMU User's Guide* on the product CD included with your Falcon.

Imager

Imaging Overview

If your Falcon has the Imager module installed, you will see the Imaging Control Panel on your screen. Select **Start > Settings > Control Panel > Imager**.

See "Sample Imager Settings" on page 2-20 to view sample settings for different conditions.

Image Capture

The **Capture** page allows you to preview and capture an image with the Falcon.

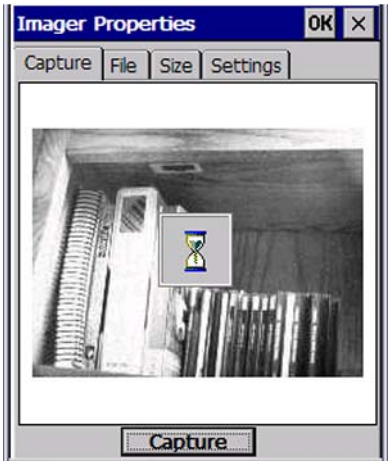
To capture an image:

1. Aim the Falcon toward the image you want to capture. The screen will display a preview of the image, making use of the current settings (to change the settings, see "Image Settings" on page 2-20).
2. Tap **Capture** (refer to Figure 2-12A) or press and hold the trigger.

Figure 2-12. Image Capture Settings

A

B

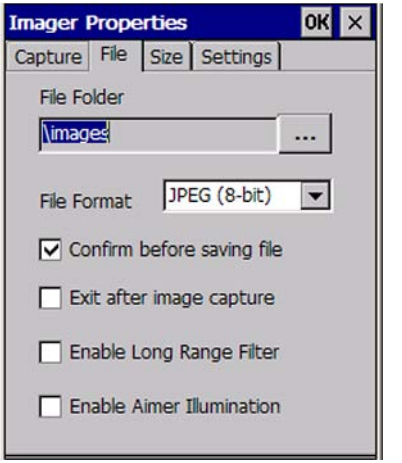


3. An hourglass will appear, indicating the image capture process has begun (see Figure 2-12B). Continue to hold the Falcon steady until you hear the capture sound, signifying that the image capture is complete.

4. A **File Save** message showing the image file name will appear, unless that option has been previously deselected in the **File** settings (in that case, the file will automatically save without prompting). See "Image File" on page 2-18, to change settings.
5. Tap **Yes** to save the image, or **No** to discard it.

Image File

1. Specify where you want images to be saved in the **File Folder** field. If you do not select a folder, images will be saved to the default folder "**\Images**." Use **...** (browse) to browse to a different folder.
2. Use **File Format** to select the image format you want. You can choose between the following graphics formats:
   - TIFF (1-bit monochrome)
   - TIFF (8-bit grayscale)
   - JPEG (8-bit grayscale)
   - BMP (1-bit monochrome)
   - BMP (8-bit grayscale)

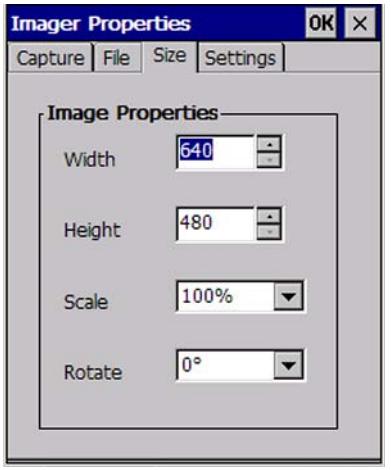


3. Check **Confirm before Saving File** to automatically get a **File Save** message when saving images (see Figure 2-12B). If unchecked, the file will automatically save to the specified file folder (at the root of the Falcon's drive) without prompting.
4. Check **Exit after Image Capture** to cause the Imaging Control Panel to close automatically after saving the image to a file.

5. **Enable Long Range Filter** enhances pictures taken from very long distances (greater than 10 feet or 3 meters).
6. **Enable Aimer Illumination** turns on the aimer LEDs to provide more light for an image capture.

Image Size

On the **Size** tab, modify the image property settings as desired. Both keyboard and stylus input are supported.



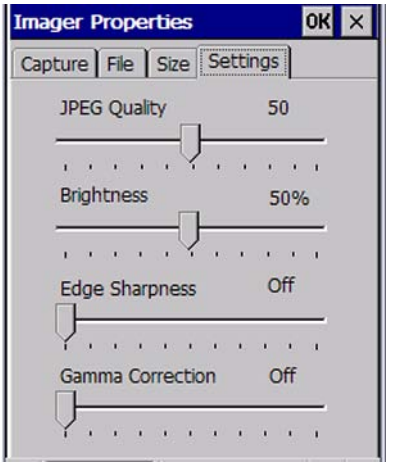
1. Use the **Width** and **Height** controls to adjust the image.
   - Width can be as much as 640 pixels.
   - Height can be as much as 480 pixels.

   Reducing the height and width results in cropping of the image to the center.
2. Use **Scale** to scale the image. Scaling changes the x,y dimensions of the image. For example, scaling a 640 x 480 image to 50% results in an image size of 320 x 240. See "Imaging Controls" on page F-32, for further information.

Reducing the scale of an image results in reduced image size, which decreases the time needed to capture an image.

3. **Rotate** allows you to change the orientation of the image, in 90° increments.

Image Settings



1. **JPEG Quality** sets the desired quality when the JPEG image format is selected. Selecting a higher quality results in a higher quality image, but a larger file.
2. **Brightness** allows you to set the brightness level the imager will use when taking images.
3. **Edge Sharpness** specifies how much the imager will attempt to sharpen edges in images it takes. Selecting the highest position on the slider gives the sharpest edges, but also increases noise in the image.
4. **Gamma Correction** measures the brightness of midtone values produced by the image. You can brighten or darken an image using gamma correction. A higher gamma correction yields an overall brighter image. The lower the setting, the darker the image. Move the slider to change the amount of correction the imager applies when taking images.

Sample Imager Settings

To obtain the best possible results, you can modify the settings to suit specific conditions or purposes. Table 2-3 shows samples of recommended settings for common usages. These settings are suggested only, you will need to take into account your particular environment and conditions to determine optimal settings for your specific situation.

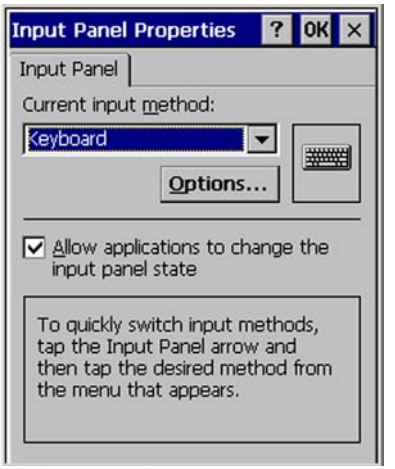
Table 2-3. Sample Imager Settings

Condition	Item	Recommended Setting
Distance >10 ft (3 m)	Long Range filter	On
	Illumination	Off
Low light	Illumination	On
	Brightness	100%
	Gamma Correction	20
Printed Text	Illumination	On
	Sharpness	100%
	File format	8-bit
Signature	Illumination	On
	Sharpness	100%
	File format	1-bit

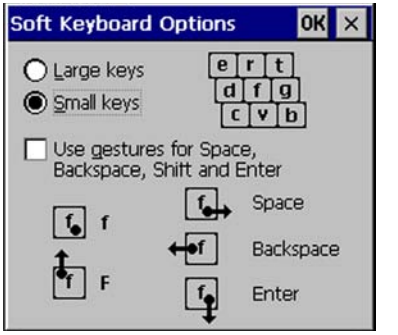
Input Panel Properties

To change the **Soft Input Panel** settings:

1. Select **Start > Settings > Control Panel > Input Panel**.
2. Change the desired settings.
3. To change the **Soft Keyboard Options**, tap **Options**.
4. Change the soft keyboard options as desired, selecting from:
   - Large or small keys.
   - Using gestures for space, backspace, shift, and enter.



5. To exit the **Soft Keyboard Options**, tap **OK** on the control bar, or press **<Enter>** on the keypad.
6. To exit **Input Panel** settings, tap **OK** on the control bar, or press **<Enter>** on the keypad.



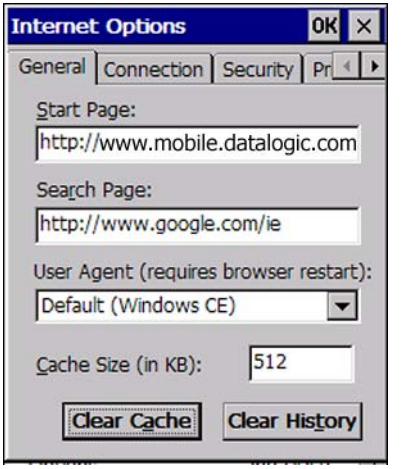
Internet Options

To change the **Internet** default settings:

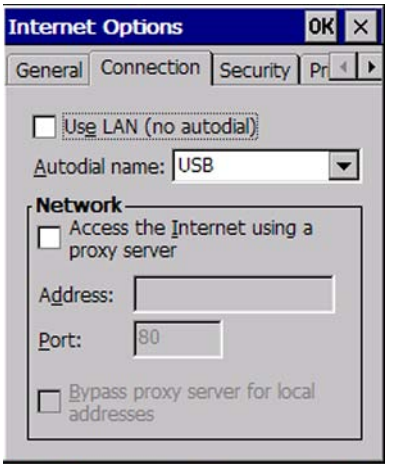
1. Select **Start > Settings > Control Panel > Internet Settings**.
2. On the **General** tab (refer to Figure 2-13A), type in the URL of the desired start page and the desired search engine. You can also select a User Agent, change the **Cache Size**, clear the Cache, and clear the History.
3. On the **Connection** tab (refer to Figure 2-13B) modify the network access settings as desired.

Figure 2-13. Internet Settings

A



B



4. On the **Security** tab (refer to Figure 2-14A) add sites or modify the security settings for Internet, Local intranet, Trusted Sites, and Restricted Sites.

Figure 2-14. Internet Settings

A

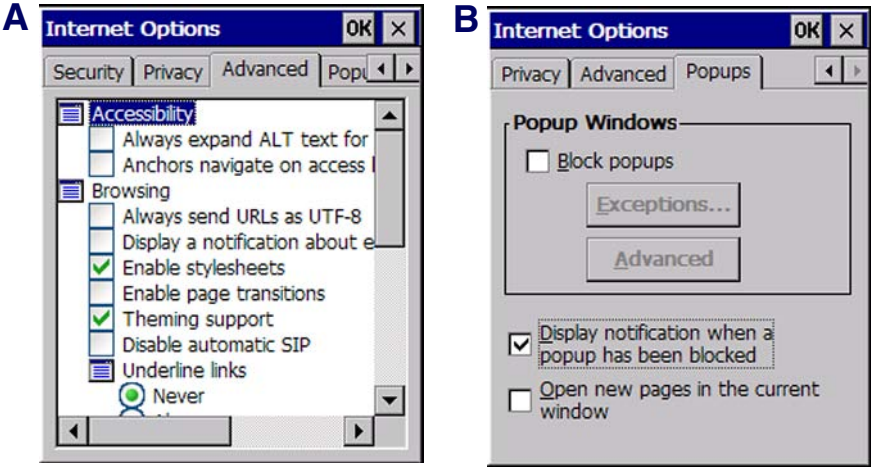
B

5. The **Privacy** tab (refer to Figure 2-15) allows you to modify the settings by tapping the radio buttons. You can Accept, Block or receive a Prompt for First-party and Third-party Cookies. You can also Enable/disable session cookies by selecting the check box.

Figure 2-15. Internet Privacy Settings

6. On the **Advanced** tab (refer to Figure 2-16A) modify the advanced settings for Accessibility, Browsing, Multimedia, and Security by tapping the check boxes.

Figure 2-16. Advanced Internet and Popup Settings



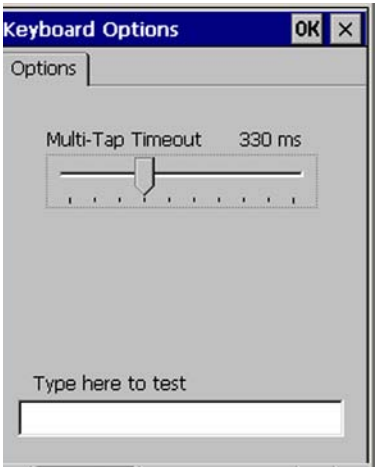
7. The **Popups** tab provides options for blocking popups, to display notification when popups have been blocked, and to open new pages in the current window.
8. To exit **Internet Settings**, tap **OK** on the control bar or press **<Enter>** on the keypad.

Keyboard Configuration

The keyboard control panel will appear different, depending upon which keypad your Falcon has.

26-Key Keypad

1. Select **Start > Settings > Control Panel > Keyboard Options** to open the Keyboard control panel.
2. Adjust the slider for **Multi-Tap Time-out** to match your personal preferences.
3. Use the box provided to test the time-out delay.
4. Tap **OK** to exit the **Keyboard Options** control panel.

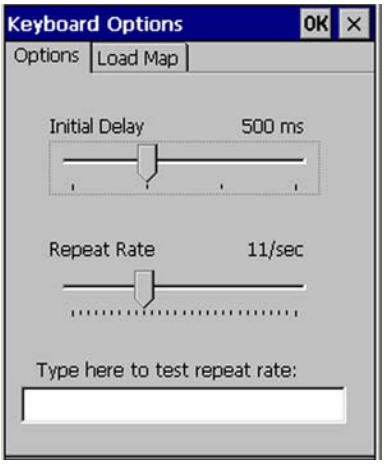


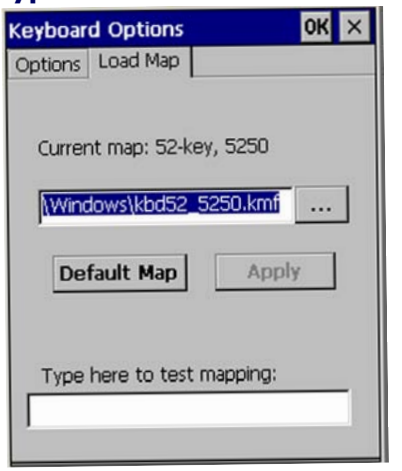
48, 52 and 52-Key NU Keypads

The control panels for the 48, 52 and 52-key NU keypads have some additional options and an additional tab for key mapping.

1. Select **Start > Settings > Control Panel > Keyboard** to open the Keyboard control panel for your keypad.
2. On the **Options** tab, adjust the slider for **Initial Delay.** This configures the time to hold down a key before it repeats.

Figure 2-17. 48-Key or 52-Key Keypad Control Panels





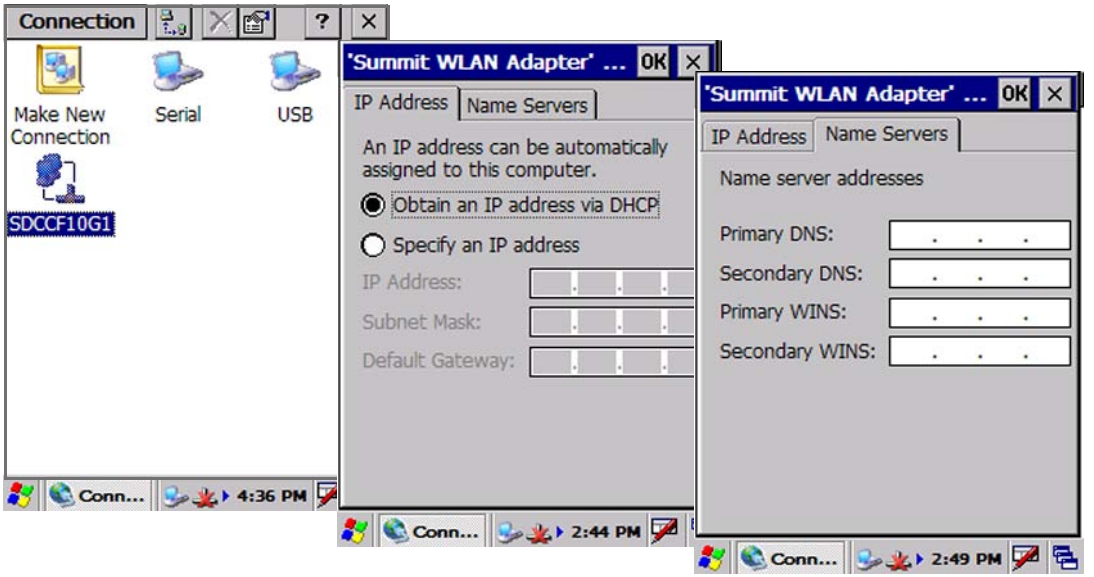
3. You can also adjust the slider for **Repeat Rate**. This configures how fast the keys repeat.
4. Use the box provided to test the selected repeat rate setting.
5. On the **Load Map** tab, you can select a keyboard key-map by browsing, or change to the **Default Map**.
6. Use the box provided to test the current keyboard mapping.
7. Tap **OK** to save your changes and exit the **Keyboard Options** control panel.

Network and Dialup

To change the Network and Dialup connection settings, complete these steps:

1. Select **Start > Settings > Network and Dialup Connections**.

Figure 2-18. Changing Network & Dialup Settings.



2. Double-tap the connection to view or change the settings. The **SDCCF10G1** item shown in the example above can vary, depending on the radio installed and the number of connections.

3. Complete the two tabs as shown in Figure 2-18:

   - **IP Address**: Select **DHCP** or set static IP settings.
   - **Name Servers**: If using static IP, set **DNS** and **WINS** servers.

Owner

To change the **Owner** default settings:

1. Select **Start > Settings > Control Panel > Owner Properties**. The **Input Panel** opens to facilitate entering data.
2. Enter data using the input panel or the keypad on the PDA.
3. To exit the **Owner Properties** control panel, tap **OK** on the control bar, or press **<Enter>** on the keypad.

For more information on using the **Network ID** tab, refer to "Setting Up the Network ID" on page 4-8.

Password

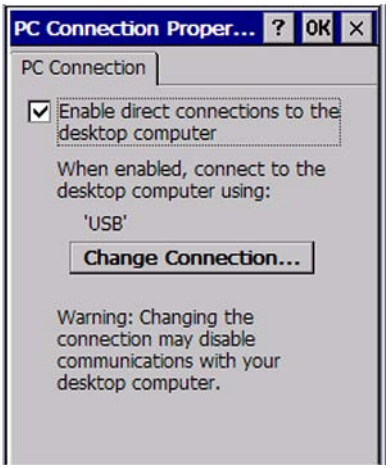
To change the **Password** default settings:

1. Select **Start > Settings > Control Panel > Password Properties**.
2. Enter the desired password twice as indicated in the two fields.
3. Select to enable password protection at power-on and/or enabling password protection for the screen-saver.
4. To exit the **Password** control panel, tap **OK** on the control bar, or press **<Enter>** on the keypad.

PC Connection

The **PC Connection** control panel determines how ActiveSync works with the PDA. To modify the default settings:

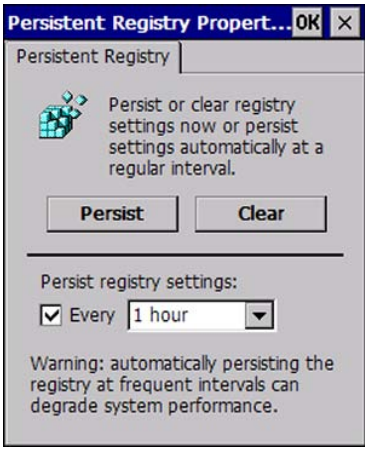
1. Select **Start > Settings > Control Panel > PC Connection**.
2. Select the first checkbox to enable direct connections to the desktop computer.
3. Tap **Change Connection** to modify the connection method from USB or Serial.
4. To exit the **Change Connection** dialog, tap **OK** on the control bar, or press **<Enter>** on the keypad.
5. To exit the **PC Connection Properties** control panel, tap **OK** on the control bar, or press **<Enter>** on the keypad.



Persistent Registry

Persistent Registry saves the RAM-based registry to persistent storage.

1. Tap **Persist** to persist the registry.
2. Tap **Persist registry settings** to automatically persist the settings at the time specified in the drop-down box
3. Tap **Clear** to delete all persistent registry files from the Flash FX disk.



Automatically persisting the registry at frequent intervals may slow system performance.

Power Configuration

To adjust power management settings, select **Start > Settings > Control Panel > Power**. Use this control panel to check the charge on the battery or to change the **Power** settings.

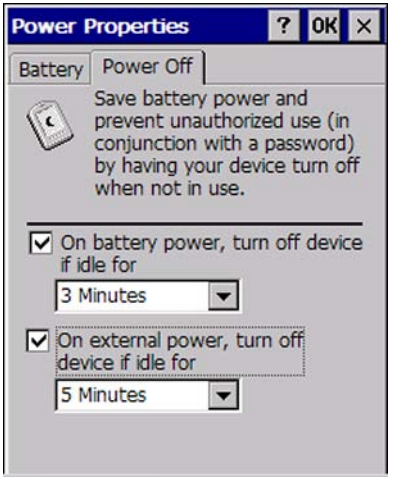
Battery Tab

The **Battery** tab provides power indicators for External power, **Main battery**, and **Backup battery** as shown in Figure 2-19 on page 2-30. To save your settings, tap **OK** on the command bar, or press **<Enter>** on the keypad.

Power Off Tab

The **Power Off** tab allows you to determine the idle duration and suspend mode initiation to save battery power as shown in Figure 2-19 on page 2-30. To save your settings, tap **OK** on the command bar, or press **<Enter>** on the keypad.

Figure 2-19. Battery and Power Tabs

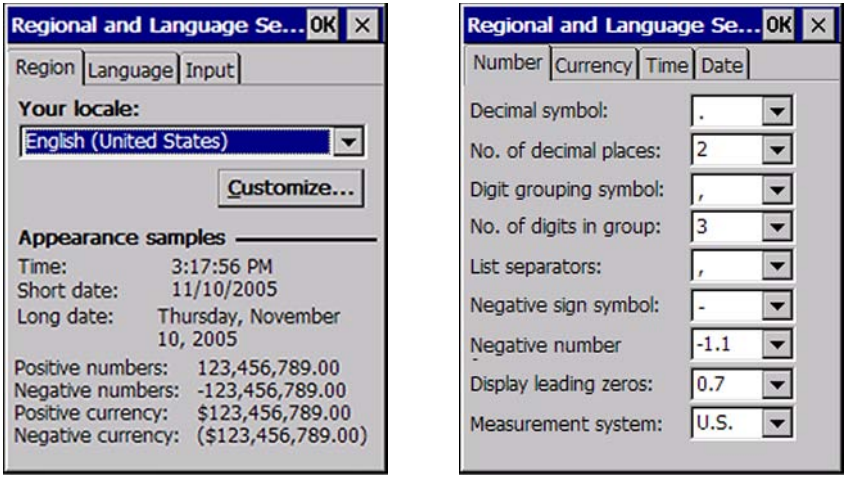


Regional Settings

To change the **Regional Settings** defaults, select **Start > Settings > Control Panel > Regional Settings**.

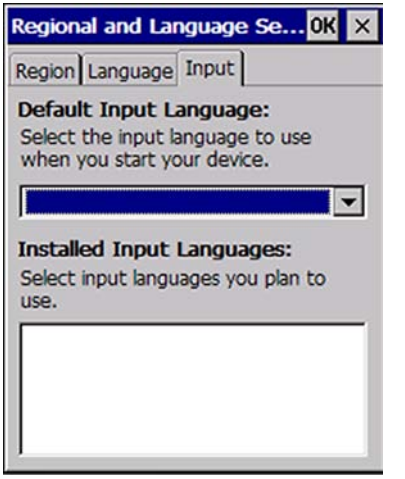
1. Select your locale from the dropdown box. See Figure 2-20 on page 2-31.
2. Review the **Appearance Samples** in the bottom half of the screen. Click Customize to change the appearance of **Number**, **Currency, Time**, and **Date.**

Figure 2-20. Region and Custom Settings



3. The options on the Language tab are disabled because the Falcon will display only in English.
4. The **Input Panel** will open to facilitate data input.

Figure 2-21. Language and Input Tabs



5. To exit **Regional Settings**, tap **OK** on the control bar, or press **<Enter>** on the keypad.

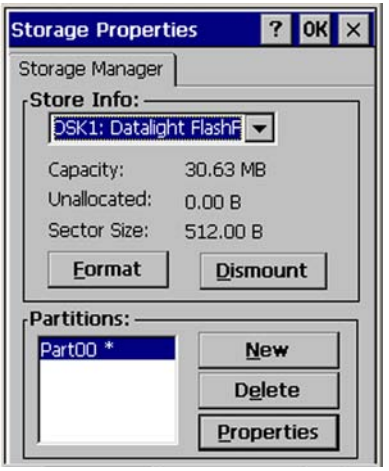
Remove Programs

See "Removing Programs" on page 3-7.

Storage Properties

To change the **Storage Properties** control panel default settings:

1. Select **Start > Settings > Control Panel > Storage Properties**.
2. From the **Store Info** pull-down list, select the desired storage device.
3. You can also format, dismount, and create partitions on storage devices using this control panel.
4. To save and exit the **Storage Properties** control panel, tap **OK** on the control bar, or press **<Enter>** on the keypad.



CAUTION **Dismounting or formatting the FlashFX drive will erase all files and program stored in the drive.**

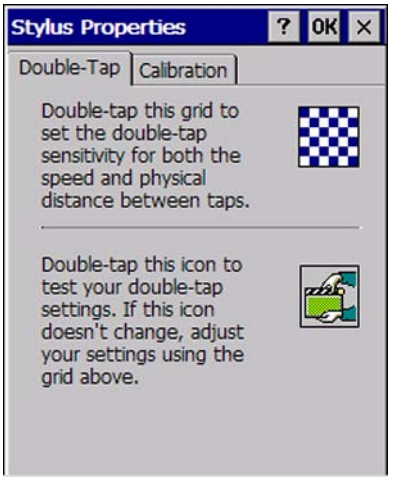
Stylus Calibration

You might need to recalibrate the touch screen (i.e. when you attempt to select one item with the stylus, another item is erroneously selected).

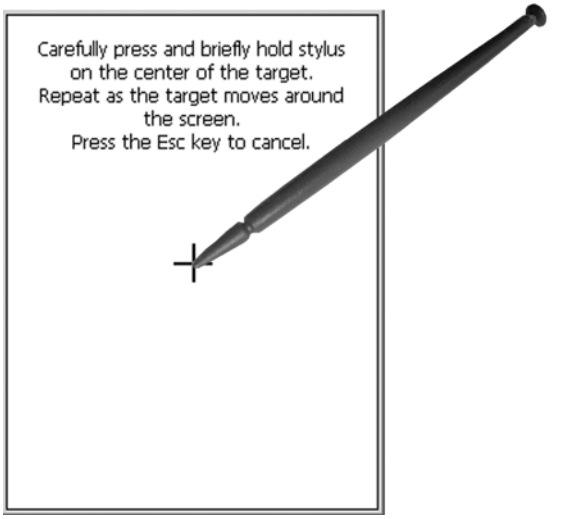
To recalibrate the touch screen, complete the following steps:

1. Select **Start** menu **> Settings > Control Panel > Stylus** to open the **Stylus Properties** dialog as shown in Figure 2-22 on page 2-34.
2. Adjust **Double-Tap** sensitivity if needed or desired.
3. Select the **Calibration** tab to open the **Calibration** application.

Figure 2-22. Stylus Properties Control Panel



4. Tap **Recalibrate** to open the **Calibration** screen shown to the right
5. Carefully press and briefly hold stylus on the center of the target as the target moves around the screen or press **<ESC>** to cancel the stylus calibration.



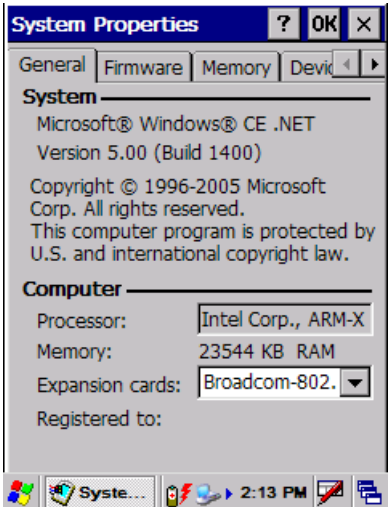
For more information about the touch-sensitive display, refer to "Using the Stylus" and "Navigating the Display" in the *Quick Reference Guide (QRG)*.

System Properties

Refer to the **System** control panel for information related to the system.To view the System properties, select **Start > Settings > Control Panel > System Properties.**

General Tab

To view the expansion card settings, select **Start > Settings > Control Panel > System Properties > General** tab.

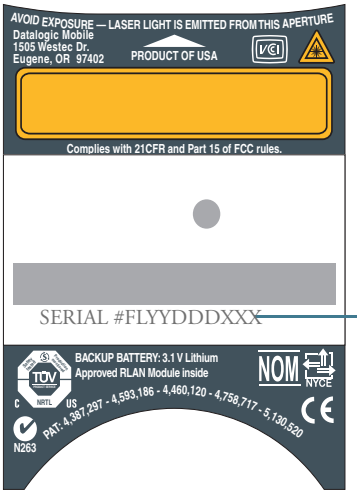


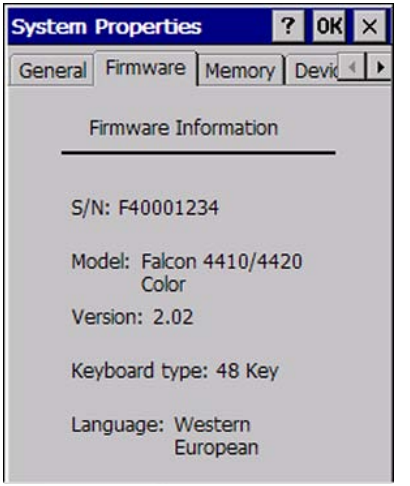
Firmware Tab

Select **Start > Settings > Control Panel > System Properties > Firmware** tab to view the device serial number, model number, firmware version, and keyboard type.

The serial number is also displayed on the safety label on the scanning pod.

Figure 2-23. Serial Number Locations



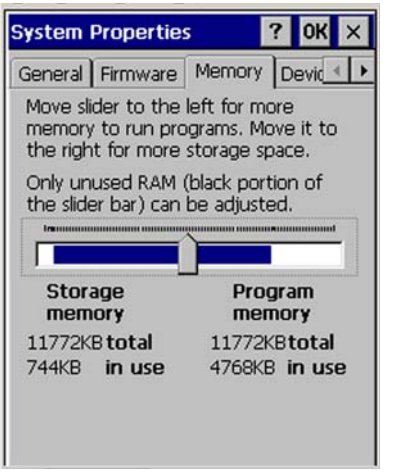


Memory Configuration

RAM Memory Allocation and Usage

Complete the following steps to adjust the **Memory Allocation** (RAM Memory):

1. Select **Start > Settings > Control Panel > System Properties**.
2. Select the **Memory** tab.
3. Move the slider to adjust memory allocation.
4. Tap **OK**, or **<Enter>** on the Falcon



Device Name

Your device uses this information to identify itself to other computers.

Copyrights

Refer to this tab for specific copyright data. As a user, you are responsible to read this statement.

Volume and Sounds

To change the **Volume and Sound** settings, complete the following steps:

1. Select **Start > Settings > Control Panel > Volume & Sounds Properties** to open the **Volume** settings.

Figure 2-24. Volume and Sounds Control Panels

2. Set the volume by adjusting the slider from **Soft** to **Loud**.
3. Enable the desired sounds for key clicks, screen taps, notifications, and applications.
4. Select the **Sounds** tab to choose from various wave files in the menu.
5. You can listen to the sound by selecting **Preview**.
6. Save your new sound scheme by selecting **Save As** and entering a name for your new Sound Scheme in the field. Delete a sound scheme by tapping **Delete**.
7. Tap **OK** when finished modifying your volume and sounds properties.

Wi-FI

About the Summit Client Utility

The Summit Client Utility (SCU) is an application designed for end users and administrators of mobile devices that use a Summit radio module. For further information beyond the scope of this manual, you can download the complete Summit User's Guide from www.summitdatacom.com.

Reference the QRG for details about the basic functions of this utility. After completing an administrator login to the utility, you can perform these additional tasks:

- Create, rename, edit, and delete profiles
- Alter global settings, which apply to every profile

SCU provides a graphical user interface (GUI) for access to all of its functions. Access to these functions also is available through an application programming interface (API), which an application programmer can use to enable another utility to manage the radio.

To initialize SCU:

1. Go to **Start> Settings > Control Panel.**
2. Tap on the **Wi-fi** icon.

SCU Windows

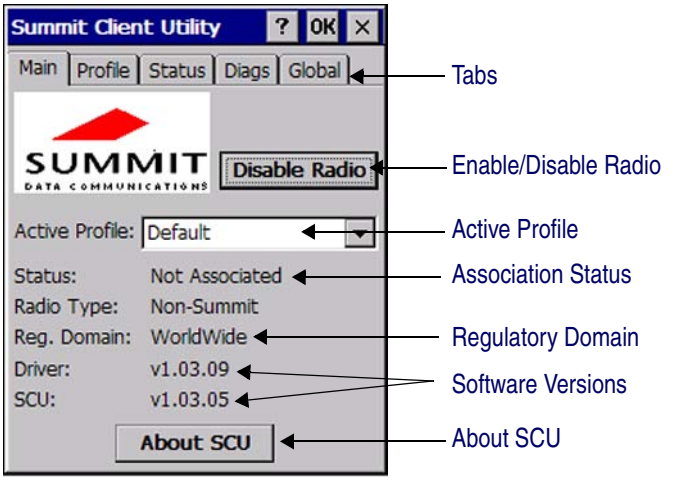
SCU has five tabs: Main, Profile, Status, Diags (Troubleshooting), and Global Settings. Tabs enable easy navigation. Each tab is described in more detail in this section.

Main Tab

Reference Figure 2-25 on page 2-40 to view the features of the Main tab.

- **Enable/Disable Radio**: Select or deselect to enable or disable the radio.
- **Active Profile:** Displays the name of the active configuration profile. An administrator can use the selection list to select a different profile.
- **Association Status:** Indicates if the radio is associated to an access point and, if not, what the radio's status is.

Figure 2-25. Main tab



- **Regulatory Domain:** Indicates the regulatory domain or domains for which the radio is configured. "Worldwide" means that the radio can be used in any domain. The domain cannot be configured by an administrator or user.
- **Software Versions:** Indicates the version of the device driver and the version of SCU that are running on the device.
- **About SCU:** Supplies information on SCU.

Profile Tab

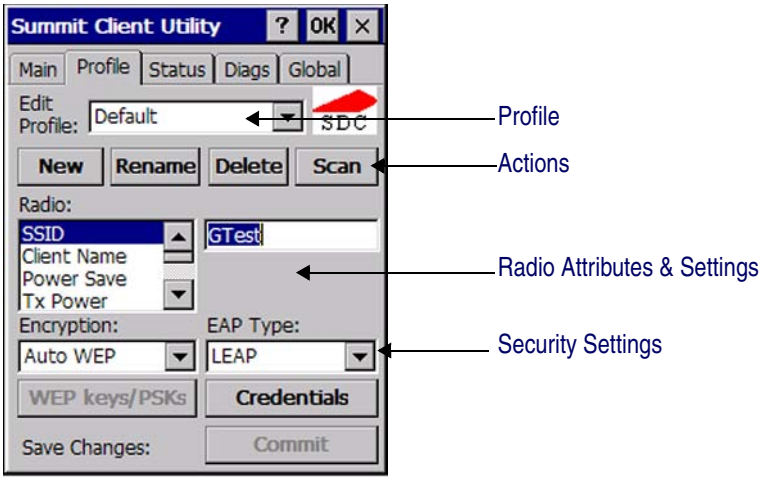
Profile settings are radio and security settings that are stored in the registry as part of a configuration profile. When a profile is selected, its settings become active. An administrator can define, edit, or delete up to 20 profiles in the Profile tab in SCU. Profile changes made are saved only when the **Commit** button is pressed.

Figure 2-26 on page 2-41 is an example of a Profile tab. Here are the highlights:

- **Profile:** Use to select the profile to be viewed or edited. If "ThirdPartyConfig" is selected then, after the device goes through a power cycle, WZC is used for configuration of the radio.
- **Actions:** Four actions are available to an administrator:
  - Rename: Give the profile a new name, one that is not assigned to another profile

- Delete: Delete the profile, provided that it is not the active profile
- New: Create a new profile with default settings and give it a name (and then change settings using other selections on the tab)
- Commit: Ensure that changes to profile settings made on the tab are saved in the profile

Figure 2-26. Profile tab



3. **Radio attribute and setting:** Attributes in the list box can be selected individually. When an attribute is selected, the current setting or an appropriate selection box with the current setting highlighted appears on the right. For example, selecting SSID causes an edit box to appear; selecting transmit power causes SCU to display a drop-down list box with available settings.
4. **Security settings:** The items at the bottom of the tab enable the administrator to configure the settings for EAP Type (used for 802.1X authentication) and Encryption.

To connect a Summit radio to a typical business WLAN, you must select a profile that specifies the SSID, EAP type, and encryption type supported by the WLAN:

- SSID: The name or identification of the WLAN.
- EAP type: The protocol used to authenticate the device and its user if the WLAN uses the Enterprise version of Wi-Fi Protected Access (WPA) and WPA2. SCU supports four EAP types: PEAP with EAP-

MSCHAP (PEAP-MSCHAP), PEAP with EAP-GTC (PEAP-GTC), LEAP, and EAP-FAST

- Encryption: Specifies the type of key used to encrypt and decrypt transmitted data and how that key is specified or derived. Encryption options include:
  - WPA2 or WPA with dynamic keys (derived from the EAP authentication process)
  - WPA2 or WPA with pre-shared keys
  - Static WEP keys

Consult the Summit User's Guide for details on all profile settings, including security settings.

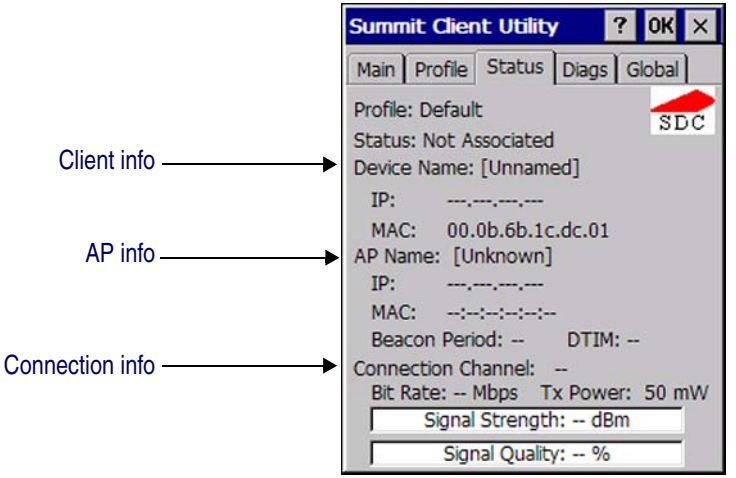
Status Tab

The Status tab shown in Figure 2-27 on page 2-43 provides status information on the radio. Status items include IP address and MAC address for the client radio, IP address and MAC address for the AP, signal strength, channel, transmit power, and data rate. A sample Status tab is shown in Figure 2-27 on page 2-43.

- **Client info:** Name of active profile, client name, client IP address, and client MAC address
- **AP info:** AP name, AP IP address, and AP MAC address
- **Connection info:** Channel, transmit power, and bit rate

One status item, the radio association state, is shown on both the Status tab and the Main tab. Potential values are: Down (not recognized), Not Associated, Associated, or [EAP type] Authenticated.

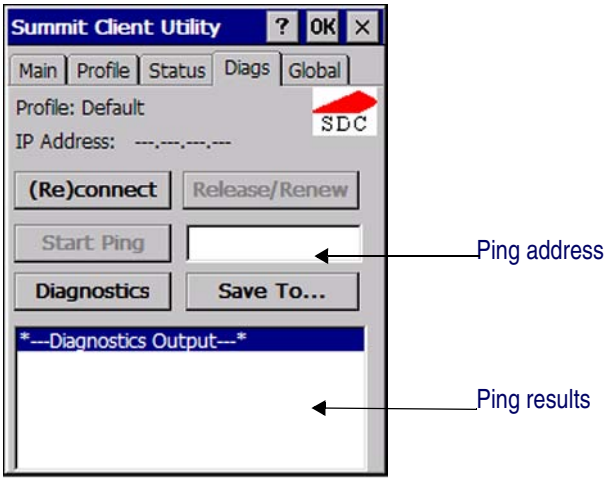
Figure 2-27. Status tab



Diags Tab

A sample Diags, or troubleshooting, tab is shown in Figure 2-28 on page 2-43.

Figure 2-28. Diags tab, with ping active



Here are the functions available on the Diags tab:

- **(Re)connect:** Disable and enable the radio, apply or reapply the current profile, and attempt to associate and authenticate to the wireless LAN, logging all activity in the output area at the bottom.

- **Release/Renew:** Obtain a new IP address through DHCP release/renew, and log all activity in the output area at the bottom.
- **Start Ping:** Start a continuous ping to the address in the edit box next to it. Once the button is clicked, its name and function will change to Stop Ping. Leaving the Diags tab also will stop the ping, as will pressing any other button on the screen.
- **Diagnostics:** Attempt to (re)connect to an AP, and provide a more thorough dump of data than is obtained with (Re)connect. The dump will include radio state, profile settings, global settings, and a BSSID list of APs in the area.

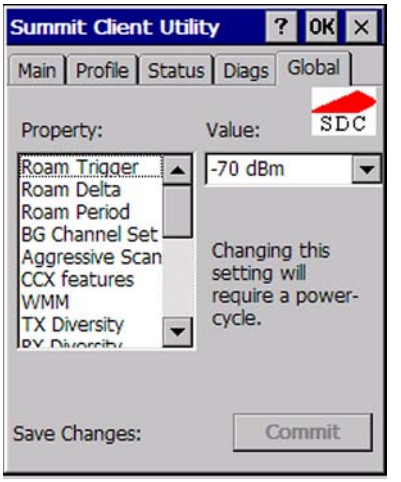
Global Settings Tab

Global settings include:

- Radio and security settings that apply to all profiles
- Settings that apply to SCU itself

An administrator can define and change most global settings on the Global Settings tab in SCU. Figure 2-29 shows a sample Global Settings tab.

Figure 2-29. Global Settings



The default setting for each global setting ensures reliable operation in most environments. Consult the user's guide for details on all global settings.

Chapter 3
Software Applications

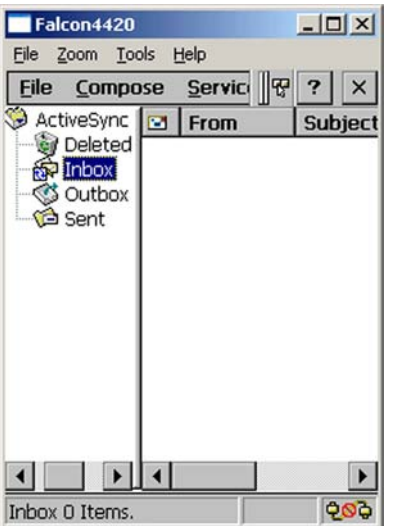
Overview

This section contains the following topics:

Inbox

The Falcon comes with **Inbox** for Windows CE installed from the factory. **Inbox** is a familiar Microsoft email interface. To set up your **Inbox**:

1. Open **Inbox** by selecting **Start > Programs > Inbox**.
2. Select **Services > Options** from the command bar to configure email.
3. Drag the screen to show **Add...**. Select **Add...**.
4. Select the **Service Type** and type the email service name in the **Service Name** text box. Select **OK**.
5. Enter the server and user information in the **Mail Service Definition**.
6. Configure your inbox using the **Mail General Preferences** dialog.
7. Configure your mail retrieval settings in the **Mail Inbox Preferences**.



8. Tap **OK** to complete the **Inbox** configuration.
9. Select **Services > Connect** from the command bar.
10. Select **Services > Send/Receive Mail** from the command bar to manually retrieve mail. Pending email appears in the inbox after connecting.

Internet Explorer

The Falcon comes with **Internet Explorer** for Windows CE installed.

1. Open **Internet Explorer** by selecting **Start > Programs > Internet Explorer**.
2. To set a default home page, navigate to the desired default web page.
3. Select **View > Internet Options** from the command bar.
4. Enter the desired URL in the **Start Page** field.
5. Tap **OK.**

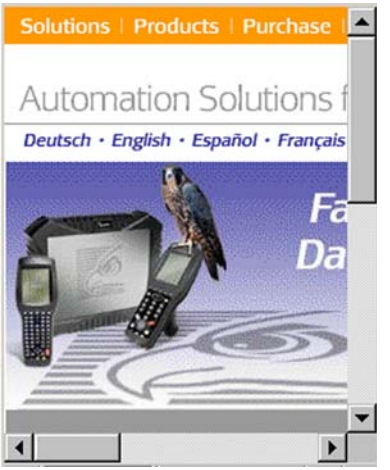
Internet Explorer window with the **Status** bar and **View** menu.

Internet Explorer uses sliding menus for application and navigation control. Tap and drag the sliding menus to the left or right to see the hidden menu items and toolbars.

To achieve more screen real estate in Internet Explorer, you can hide the **Status** bar and **View** menu. From the top menubar, go to **View > Hide Toolbars**.

Once it is hidden, you must cold reset to access these features again. Refer to the *Falcon 4400 Series Quick Reference Guide (QRG)* for reset instructions.

For more fine grained control over the way Internet Explorer is displayed, refer to Falcon® Desktop Utility for Windows® CE, starting on page B-1

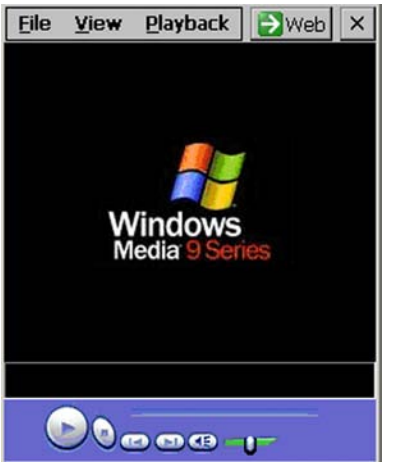


Internet Explorer window with the **Status** bar and **View** menu hidden.

Media Player

The Falcon comes with **Media Player** for Windows CE installed.

1. Open **Media Player** by selecting **Start > Programs > Media Player**.
2. Select **File > Open** to open an available existing media file.
3. Please refer to www.microsoft.com for additional information and help with your Microsoft Windows **Media Player.**



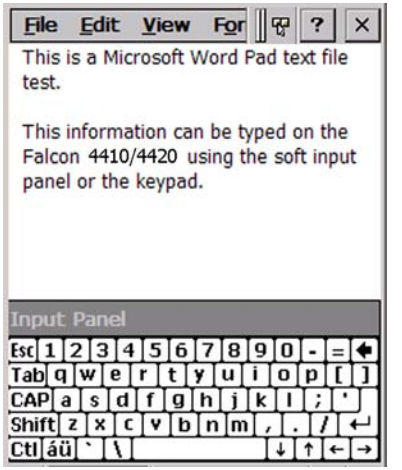
WordPad

The Falcon comes with **WordPad** for Windows CE installed from the factory. The following text and document file types are compatible with **WordPad**:

- Text (**`*.txt`**)
- Word Document (**`*.doc`**)
- Rich Text File (**`*.rtf`**)
- WordPad (**`*.pwd`**)

When file types other than **`*.pwd`** are transferred to the device, Windows CE translates the files into a compressed file type.

To start **WordPad**, select **Start > Programs > Microsoft WordPad**.



Installing Programs

Programs pre-installed on the Falcon are stored in ROM (read-only memory). You cannot remove or modify this software.

You may add programs and data files to RAM (random access memory) or into Flash memory via the FlashFX Disk. You can install **`*.cab`**, **`*.exe`** **`*.zip`** files, or other files designed for the Falcon.

Please follow the directions provided with the software to install it.

Using an Installation Wizard

If the file has an installer, the installation wizard begins automatically if you have ActiveSync installed. Most installation programs require an ActiveSync connection. (Refer to "Installing & Setting Up Microsoft ActiveSync" on page 4-1.)

Follow the directions on the screen. Once the software is installed on your desktop computer, the installer transfers the software to your Falcon.

Installing Programs Manually

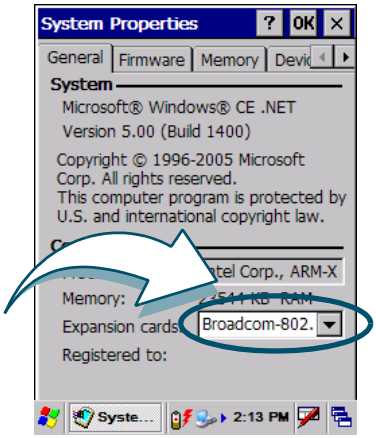
To quickly install programs on multiple Falcons, use the Falcon Management Utility (**FMU**). For more information, refer to page 2-16.

If the file does not contain an installer, an error message indicates the program is valid but is designed for a different type of computer.

- Install **`*.cab`**, **`*.exe`** **`*.zip`**, **`setup.exe`** files, or other files designed for the Falcon.
- Windows CE applications will also work on the Falcon.

Start by downloading the program to your desktop computer (or insert the CD or disk that contains the program into your desktop computer).

1. Select **Start > Settings > Control Panel > System > General** on the Falcon. Make a note of the information in the **Processor** field as shown at right. The processor type is required to determine file type compatibility.



2. Read the installation instructions, **ReadMe** files, or manual that comes with the program. Many programs provide installation instructions.
   - If you cannot find installation instructions for the program in the **ReadMe** file or manual, use **ActiveSync Explore** to copy the program file to the **Program Files** folder on your Falcon.
   - For more information on copying files using **ActiveSync**, refer to the **ActiveSync** online Help.
3. Connect your Falcon and desktop computer. Refer to Networks, Communications, and Connections, starting on page 4-1 to connect your Falcon with your PC.
4. Double-click the ***.exe** or ***.cab** file.
5. Once the installation is complete, double-tap the program icon from the desktop, or select **Programs > program icon** to select it.

Refer to "Using ActiveSync to Add to the Start Menu" on page 3-7.

Using Windows Explorer to Add to the Start Menu

1. Select **Start > Programs > Windows Explorer**, and select the directory where the application or program is stored.
2. Select **Cut** from the **Edit** menu.
3. Open the **Programs** folder located in the Windows folder, select **Paste** from the pop-up menu.

The program appears on the menu.

Using ActiveSync to Add to the Start Menu

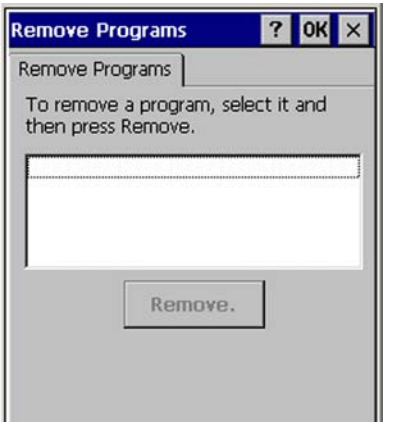
1. Use the **Explorer** in **ActiveSync** on your desktop computer to explore the files on your Falcon and locate the program. For more information on using **ActiveSync**, refer to the **ActiveSync** online Help.
2. Right-click on the program, then select **Create Shortcut**.

Move the shortcut to the **Programs** folder in the Windows folder. The shortcut appears on the menu.

Removing Programs

Only user-installed programs can be removed.

1. To remove a program, select **Start > Settings > Control Panel > Remove Programs**.
2. Select the program you wish to remove from the list and tap **Remove**.



Firmware Update Utility

The Falcon is equipped with a field upgradeable firmware mechanism. Firmware updates for the Falcon are available on the Datalogic Mobile website (www.mobile.datalogic.com). After you have downloaded the desired update, there are several ways you can update the firmware on the Falcon.

- Use the Falcon Management Utility (FMU) if you have multiple Falcons to update. Refer to the *FMU User's Guide* on the Product CD included with your Falcon for more information.
- If FMU is not available or you have only a few Falcons to update, use the Firmware Update Utility (FUU), described below, to install or update the firmware using an ActiveSync connection. Refer to "Installing & Setting Up Microsoft ActiveSync" on page 4-1 for more information.

FUU can also be used to restore the firmware onto a Falcon that has become corrupted, such as would happen if the Falcon were powered down during an ActiveSync firmware update. See "Restoring Falcon Firmware" on page 3-10.

The following sections provide procedures for the retrieval and installation of the most current firmware image onto a Falcon.

Retrieving a Firmware Image Update

The following instructions use Internet Explorer to retrieve the most current firmware image.

1. Launch Internet Explorer on your PC and navigate to the Datalogic Mobile website.
2. Navigate to the Downloads section of the website.
3. Select the file you want to download, then click Save to begin copying the files to your local machine (or local network location).

Installing FUU on the Host PC

The Firmware Update Utility (FUU) provides administrators with a field upgrade mechanism. You must have Microsoft® ActiveSync already loaded and running on the host PC to use FUU. Refer to *"Installing & Setting Up Microsoft ActiveSync" on page 4-1 and* "Using ActiveSync" on page 4-6 for more information about ActiveSync.

Prior to installing FUU, you must remove any previous versions of FUU installed on the host PC.

To install Datalogic Mobile's Falcon® Firmware Update Utility, complete the following steps on the PC:

1. Insert the CD ROM shipped with your Falcon and click on the link to **Firmware Update Utility**.

   OR

   Go to the Datalogic Mobile website and download the most current version of the Firmware Update Utility. Unzip the file, then double-click to run **`FUU_Setup.exe`**

   Click **OK** to continue once you have removed previous versions of FUU.

2. The **Welcome to FUU Setup Program** screen opens.
   - Please exit all Windows applications before running this setup.

- Click **Cancel** to quit Setup and close any programs you have running.
- Click **Next** to continue the Setup.

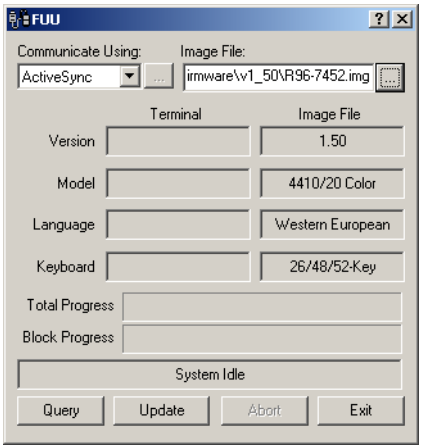
3. Follow the onscreen instructions to complete the installation.

Updating the Falcon Firmware

After copying the firmware image to the host PC ("Retrieving a Firmware Image Update" on page 3-8) and installing **FUU** ("Installing FUU on the Host PC" on page 3-8), you can upgrade the firmware on your Falcon.

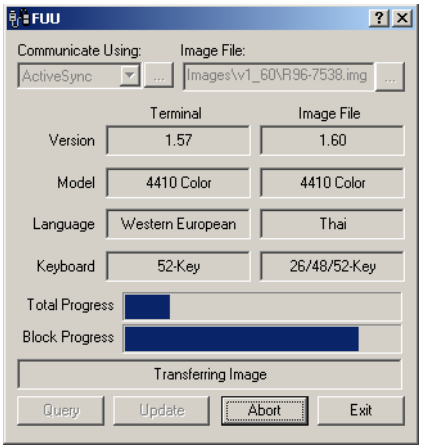
The following steps require that you have already established an ActiveSync connection between the host computer and the Falcon. To establish an ActiveSync connection with the Falcon, refer to "Installing & Setting Up Microsoft ActiveSync" on page 4-1 *and* "Using ActiveSync" on page 4-6, for more information on ActiveSync.

1. Go to **Start > Programs > Firmware Update Utility > Firmware Update Utility.**
2. Verify that ActiveSync is selected from the **Communicate Using** pull-down list.
3. Click browse (...) and navigate to the location where you saved the firmware file for your terminal.



4. Select the current ***.img** file and click **Open**.

5. Verify that the Falcon is turned on. Insert the device into a powered dock connected to the host computer.
6. Click **Update Terminal** on **FUU** on the host PC.



7. **FUU** will compare the selected firmware image with the firmware already loaded on the Falcon; if the images are different, **FUU** will proceed to update the firmware image on your Falcon.

Please be patient and do not remove the Falcon from the Dock during this procedure. The firmware image of the Falcon can take as long as:

- 12 minutes to download using a USB connection.
- 22 minutes to download using a serial connection with 115K baud rate.
- 130 minutes to download using a serial connection with 19.2K baud rate.

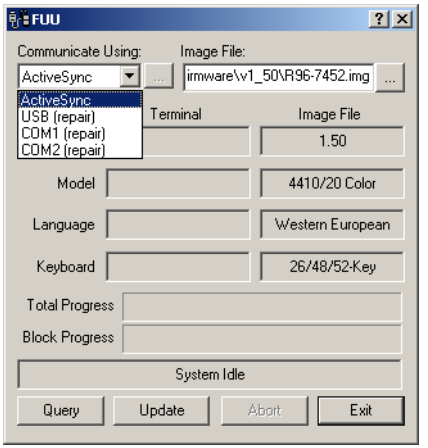
8. After the firmware of your Falcon has been updated, you must perform a warm reset of the Falcon. Refer to the *Falcon 4400 Series Quick Reference Guide (QRG)* for reset instructions.

Restoring Falcon Firmware

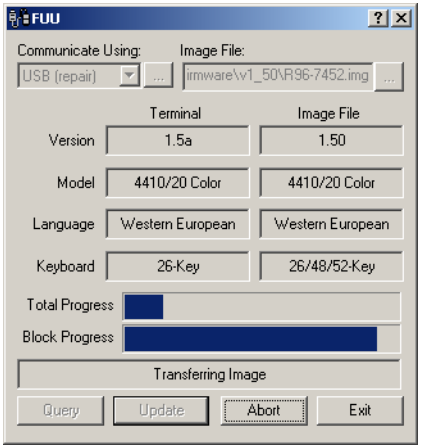
If the firmware image on the Falcon becomes corrupted, the Falcon will beep twice and show a blank screen when powered on. This can happen if a firmware update is aborted, such as during a power loss or if the Falcon is removed from the Dock before completion of the procedure.

To reinstall the firmware, complete the following steps:

1. On the PC, click **Start > Programs > Firmware Update Utility > Firmware Update Utility.**



2. Set **Communicate Using** to the communications port to which the dock is attached to (**`ActiveSync`**, **`USB`**, **`COM1`** or **`COM2`**.)
3. Click browse (**...**) and navigate to the file location.



4. Select the current ***`.img`** file and click **Open**.
5. Verify that the Falcon is turned on. Insert the Falcon into a powered dock connected to the host computer.
6. Click **Update Terminal** on **FUU** on the host PC.
7. **FUU** will restore the firmware on the Falcon as shown on page 3-9.

Please be patient and do not remove the Falcon from the Dock during this procedure. The firmware image of the Falcon can take as long as:

- 12 minutes to download using a USB connection.
- 22 minutes to download using a serial connection with 115K baud rate.
- 130 minutes to download using a serial connection with 19.2K baud rate.

8. After the firmware has been restored, the Falcon will automatically reset.

AutoStart

The AutoStart program provides three functions:

- Allows you to create a list of applications (with optional command line arguments) to run automatically prior to loading CAB files.
- Automatically reinstalls specified CAB files when the Falcon is Hard Reset.
- Allows you to create a list of applications (with optional command line arguments) to run automatically after loading CAB files.

AutoStart launches each time the Falcon is rebooted. AutoStart first runs **`PreAuto.ini`** (reference Table 3-2 for the location), executing each line with the specified command line arguments. It will take into account any AutoStart options at the begining of the line.

Upon a Cold Reset, AutoStart installs all the CAB files located in the AutoStart CAB folder. If the AutoStart CAB folder does not exist, no CAB files will be installed.

Table 3-1. AutoStart CAB folder location

Product	Operating System	Location
F4400	Windows CE	**`\FlashFX Disk`**
	Windows Mobile	**`\FlashDisk`**

AutoStart will then run the **`Autostart.ini`** (reference Table 3-2 for the location), executing each line with the specified command line arguments. It will take into account any AutoStart options at the beginning of the line.

Table 3-2. PreAuto.ini and Autostart.ini location

Product	Operating System	Location
F4400	Windows CE	`\FlashFX Disk`
	Windows Mobile	`\FlashDisk`

Installing CAB files

Copy any CAB files you want to install into the AutoStart CAB folder. These CAB files will then be automatically installed in alphabetical order the next time you start the device.

How AutoStart Uses Wceload

If you intend to create highly interactive installers, you should either install the CABs manually or review the section on "Interactive CAB Install" in this chapter.

CAUTION

In certain environments, CAB files will be deleted after execution. To prevent the CAB file from being deleted, write protect the file before copying the file onto the device.

CAB files are installed by AutoStart using the **`Wceload.exe`** application. Table 3-3 on page 3-13 shows available command line options:

Table 3-3. AutoStart command line options

Option	Description
/noui	Specifies that you will not be prompted for any input during the installation. If the CAB file is signed, any responses will automatically be answered 'Yes.' If the CAB is unsigned, then any responses will be answered 'No.'
/silent	Suppresses dialog boxes during the installation.

Please refer to the Microsoft documentation on your device for further details on **`Wceload.exe`**.

Sample:

```
\Windows\Wceload.exe /delete 1 /noui /silent
"\FlashDisk\CAB\<cab file>"
```

Interactive CAB Install

If the CAB installer requires user interaction that must be performed during the AutoStart CAB installation process, you can specify a special file name to disable the silent mode installation. If this mode is specified, the CAB file will be installed with **Wceload** without any command line arguments specified.

An example of what AutoStart would execute is:
\Windows\Wceload.exe <cab file>

To force this mode of installation via AutoStart, rename the CAB file to include a '_' character before the "**.cab**" extension of the file.

Example:

"**File.cab**" should be renamed "**File_.cab**" to force AutoStart to not install the CAB in silent mode. This specially-named CAB file should be placed in the AutoStart folder with other CAB files intended for installation on the next reboot.

Autostart.ini

Autoexec.ini, which uses AutoCE on some older models, has been deprecated. These files should be renamed to Autostart.ini and reformatted as described in "AutoStart" on page 3-12.

In the following section, all references to AutoStart.ini also pertain to PreAuto.ini.

Autostart.ini and **PreAuto.ini** are text files that AutoStart will run upon startup of the Falcon, and after any CAB files are installed. This file should be placed in the AutoStart folder. AutoStart will run the **Autostart.ini** file on each reboot of the device.

Line Formatting

Each line of the **Autostart.ini** can consist of Autostart options, an executable, and any command line arguments.

```
< Autostart option(s)> <full path to executable>
<command line arguments>
```

Sample:

```
- \windows\pword.exe \file.doc
```

Table 3-4 breaks down the sample **Autostart.ini** line.

Table 3-4. Autostart.ini line formatting

Autostart option(s)	Full path to executable	Command line arguments
-	\windows\pword.exe	\file.doc

Spaces must be placed between each component of the line in the **Autostart.ini**.

If the executable path is in a folder that contains spaces in the name, quotes are required to distinguish what the actual executable name is. The following is an example of this:

"\Program Files\ScannerApp.exe" /run (valid)

\Program Files\ScannerApp.exe /run (invalid)

The second line is an invalid line because there is no way to distinguish the executable from the argument.

AutoStart Options

Table 3-5 shows options you can use when writing a line in the **Autostart.ini** or **PreAuto.ini** file.

Table 3-5. Options for Autostart.ini and PreAuto.ini

Description	Character	Comments
Comment: This line will not be executed.	**'#' OR ' ' (space)**	This may only be used as the first character of the line. If the comment option is specified in the options elsewhere, it is ignored.
Do not wait on line completion: This will cause the line to execute and immediately move onto the next line.	**'_'**	
Query: Request user confirmation when running the executable.	**'?'**	This will halt parsing the Autostart.ini until the confirmation is answered. *This is intended for debugging the Autostart.ini file.*
Execute only on Cold Reset	'!'	

Cold Reset Only: This will cause the line to execute only after a Cold Reset.

An empty line will be treated as a comment line.

Combining Options

Autostart options can be combined together as shown in the following sample:

```
?- \Windows\Pword.exe
```

This line would:

- Request confirmation before executing the line. The next line would not be processed before the confirmation is answered.
- Run the next line without waiting on the current line to complete execution.

Query Option

The query option is intended for use when debugging the **`autostart.ini`**. When a line with this option is executed, the following dialog will appear with the specified executable and command line arguments. The populated fields shown in the AutoStart Execute Query are described in Table 3-6 on page 3-17.

AutoStart Execute Query

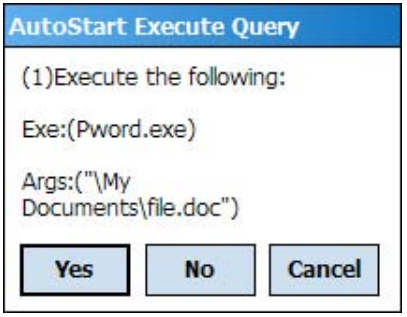


Table 3-6. AutoStart Query options

Field	Description
Line Number	This is the line number in the script being executed.
Exe	The executable as parsed by AutoStart.
Args	The argument as parsed by AutoStart.

The fields may be broken up into multiple lines (as shown in the example) due to limited space in the dialog.

Parentheses are used to surround the given field and make it very clear what the value of the field is.

Table 3-7 describes the results of each choice:

Table 3-7. AutoStart Query actions

Button	Action
Yes	The current line will execute.
No	The current line will not execute. AutoStart will continue parsing the Autostart.ini.
Cancel	The current line will not execute and AutoStart will discontinue parsing the Autostart.ini.

Autostart.ini Samples

Table 3-8 on page 3-18 is a collection of sample Autostart.ini lines.

Table 3-8. Sample Autostart.ini lines

Line	Description
`? \windows\wceload.exe "\My Documents\FDU.cab"`	This will confirm the execution of **`\Windows\wceload.exe`** with specified argument **`"\My Documents\FDU.cab"`**
`\Program Files\App.exe`	*(invalid)* This will execute **`\Program`** with the argument **`Files\App.exe.`**
`\Program Files\App.exe /run`	*(invalid)* This will execute **`\Program`** with the argument **`Files\App.exe /run.`**
`"\Program Files\App.exe" /run`	This will execute the program **`\Program Files\App.exe`** with the argument **`/run`**.
`?- \Windows\Pword.exe`	This will confirm the execution of **`\Windows\Pword.exe`**. If the execution is confirmed, AutoStart will immediately process the next line.
`!"\Program Files\App.exe" /run`	This will execute the program **`\Program Files\App.exe`** with the argument **`/run`** ONLY after a Cold Reset.

Chapter 4

Networks, Communications, and Connections

Overview

This section contains the following topics:

Installing & Setting Up Microsoft ActiveSync

This section provides instructions on setting up the Host PC so that the PC can communicate with the Falcon and the dock.

The screen shots in the manual were taken and the procedures were written using Windows® XP. If you are using Windows® 2000 or Windows® NT, appearances and procedures may be slightly different.

Important! You must disconnect any other PDAs, PDTs, or Falcons using USB ActiveSync from the Host PC prior to connecting the Falcon or the Host PC and Microsoft ActiveSync may not recognize the new device.

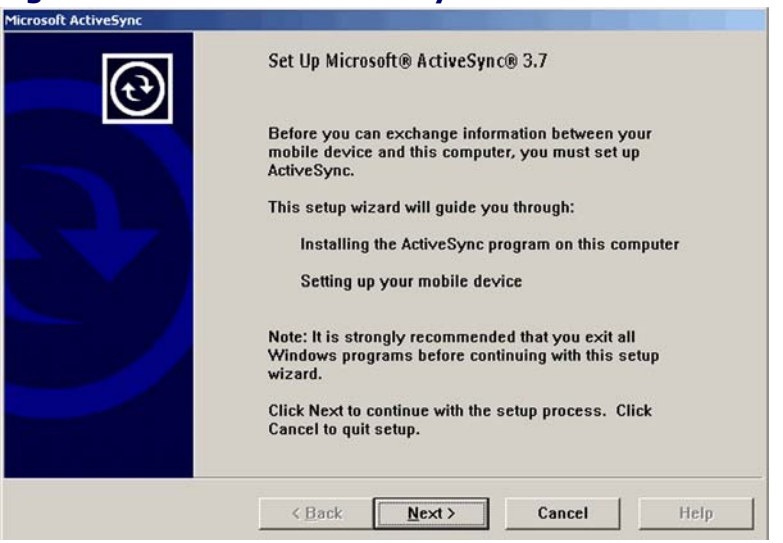
Installing Microsoft ActiveSync

Microsoft® ActiveSync is a file transfer tool used to synchronize the files on a PC with the files on your Falcon. The device comes from the factory with ActiveSync loaded. If you have ActiveSync already installed on your PC, make sure that you have v3.7.1 or higher.

To install Microsoft® ActiveSync on the PC, complete the following steps:

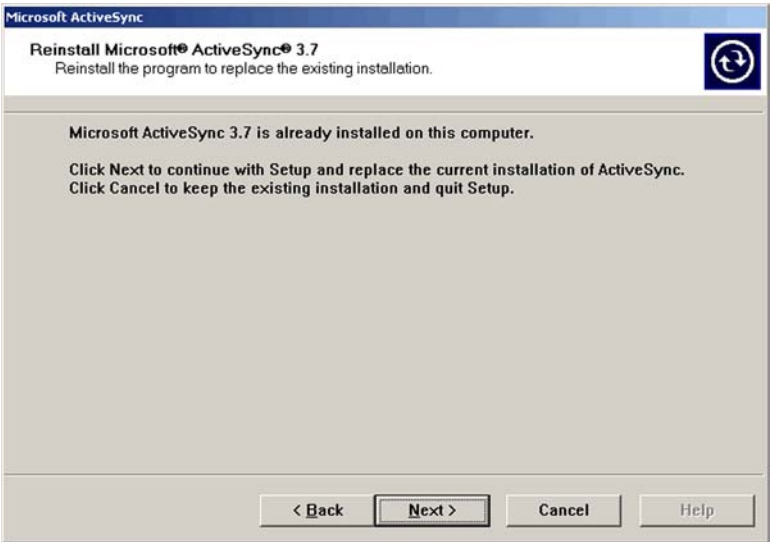
1. Go to the Microsoft® Windows CE website at http://www.microsoft.com/downloads/.
2. Use the **Product/Technology** pull-down list to search on "ActiveSync" for the most current version.
3. Download the current version of ActiveSync from the Microsoft website.

Figure 4-1. Microsoft ActiveSync Installer



4. Install the most current version of Microsoft® ActiveSync (v3.7.1 or higher) on the host PC (refer to Figure 4-1 on page 4-2).

Figure 4-2. Microsoft ActiveSync Installer



5. Click **Next** to continue the installation. Click **Cancel** to cancel the installation of ActiveSync.

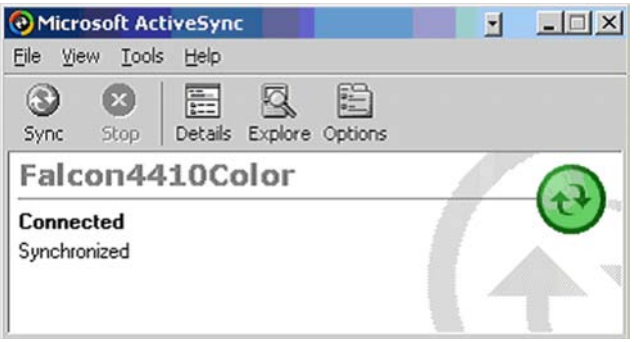
Figure 4-3. Microsoft ActiveSync Installer

6. Reboot your PC.
7. You have completed installing ActiveSync.

Setting Up ActiveSync

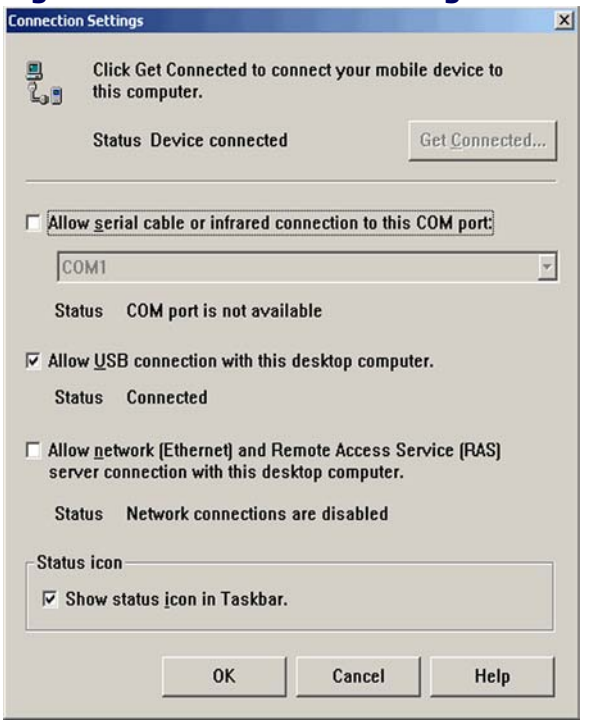
1. Open ActiveSync from the System Tray of the Host PC.
2. Connect the Falcon to the Host PC via a dock or USB/Serial cable.
3. Verify that the Falcon is turned on.
4. Within a minute, the ActiveSync window should appear, attempting to connect to a new device.

Figure 4-4. Microsoft ActiveSync dialog



5. If ActiveSync does not connect within two minutes, try the following:
   - Double-click and open **ActiveSync** from the Host PC's System Tray if it is not already open.
   - Remove the Falcon from the dock and then reinsert it into the dock or disconnect the cable from the Host PC and reconnect it.
   - Select **File > Get Connected** for ActiveSync to look for a mobile device.
   - Go to **File > Connection Settings** and make sure that your Connection Settings dialog show the same selections as that in Figure 4-5 below if you have a USB connection. If you have a serial connection, select the correct COM port from the pull-down list.

Figure 4-5. Connection Settings



6. You have completed setting up ActiveSync. Proceed to Installing the USB Driver, below, to install the USB driver.

Installing the USB Driver

In order for the Host PC to communicate with the Falcon, you must install the USB driver file from the CD that came with the Falcon.

Microsoft ActiveSync must be installed on your computer before proceeding. See "Setting Up ActiveSync" on page 4-4.

Important! Install the USB driver PRIOR to connecting the Falcon to the host PC.

1. Copy the current USB driver file from your Falcon CD or the Datalogic Mobile website to the following location on your computer: **`C:\Program Files\Microsoft ActiveSync\Drivers`**.

2. Connect the USB or Serial cable to Falcon or place the Falcon in the dock.
3. Connect the USB or Serial cable to a Host PC.
4. Follow the directions onscreen. The specified source directory will be the one identified in step 1.

You are now ready to use ActiveSync.

Using ActiveSync

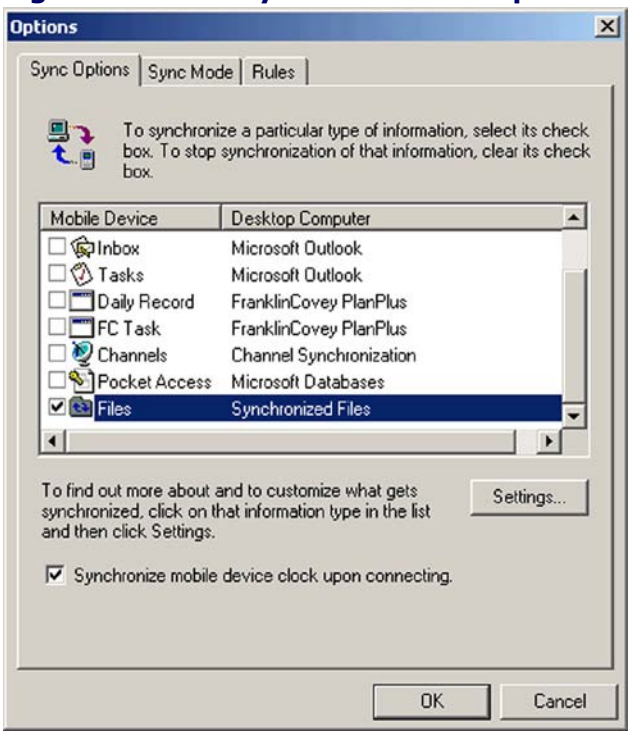
Use ActiveSync to transfer and synchronize (share) files between the Falcon and the Host PC.

File Synchronizing using ActiveSync

ActiveSync file synchronization requires an ActiveSync partnership between the Falcon and the Host PC. Refer to the ActiveSync online help for more information.

1. Select the controls in the synchronization configuration for the Falcon partnership. Refer to Figure 4-6 on page 4-7.
2. Select **Tools > Options** from the ActiveSync command bar to configure the synchronization options.

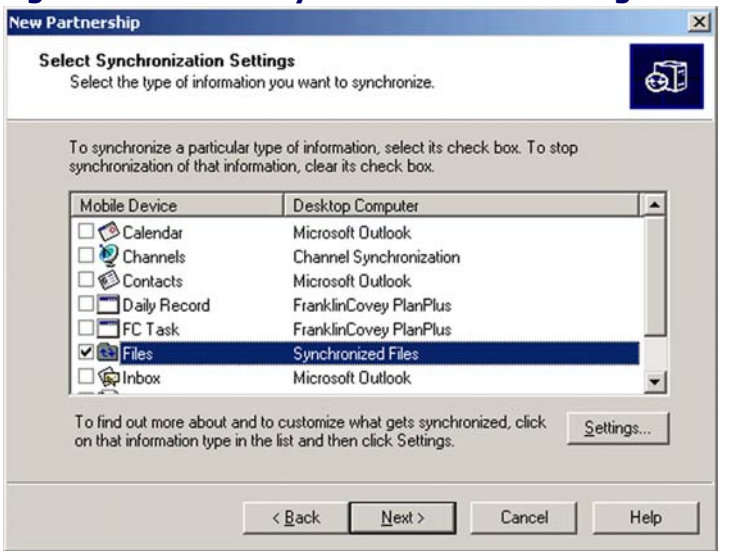
Figure 4-6. File Synchronization Options



3. Place the file to be synchronized in the **`Synchronization`** folder created in your **`My Documents`** directory (defaults to the desktop). Refer to Figure 4-7 on page 4-8.

During the ActiveSync connection, all files in the **`Synchronization`** folder will be synchronized with (copied to) the **`\My Documents`** directory on the Falcon.

Figure 4-7. Select Synchronization Settings



Networking

Setting Up the Network ID

To set up your Network ID (configure the Windows user settings, such as the user name, password, and domain), complete the following steps on the Falcon:

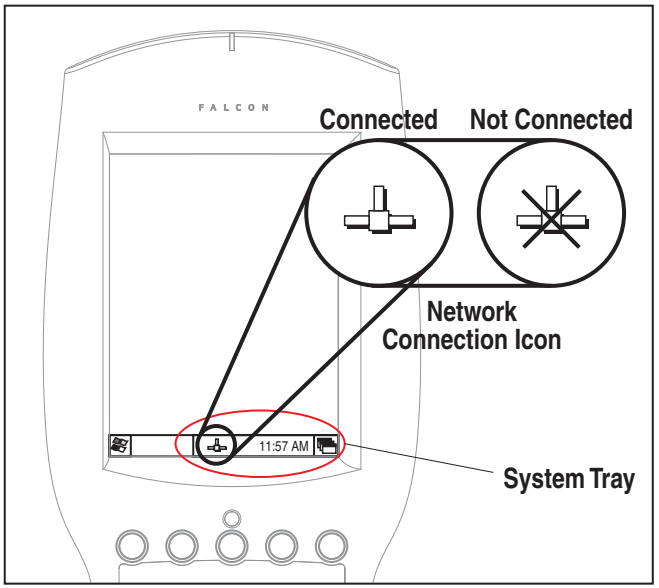
1. Go to **Start > Settings > Control Panel > Owner**.
2. Select the **Network ID** tab on the **Owner Properties** dialog box.
3. Enter your **User Name**, **Password**, and **Domain** on the **Network ID** tab.
4. Select **OK** on the command bar to save your network ID information.

Access basic network connection information by double-tapping on the **Network** icon in the system tray. Tap **Details** to show more information.

The Network Icon

The network icon in the system tray indicates if the network is currently connected or not.

Figure 4-8. The Network Icon



Network and Dialup Connections

Use Network and Dialup setup to administer the IP network settings for specific connections. The system defaults to Summit Client Utility (SCU) for wireless communications, and normal Windows Dialup and Networking for all other network connections. See About the Summit Client Utility on page 2-39 for more information on SCU.

Windows Zero Config

The Falcon can optionally be set to use Windows Zero Config, if preferred. Refer to Microsoft online help for further information.

SNMP

SNMP (Simple Network Management Protocol) is the standard protocol for managing devices on a network. The Falcon Management Utility (FMU) makes use of SNMP to send and receive configuration information to the Datalogic Mobile terminals. Since the networked terminals are constantly running SNMP, this allows FMU to interface with the terminal at any time, without requiring user intervention on the terminal.

With SNMP running on the terminal, other SNMP based network management tools such as HP Openview® and CastleRock SNMPpc® may also be used to interface with the terminals. To support this capability, Datalogic Mobile has released the Management Information Base (MIB) for the Datalogic Mobile Windows-based terminals. The MIB is used by the management tools to allow them to better support the configuration values provided on the terminals, such as scanner controls and terminal type information.

The MIB is available at www.mobile.datalogic.com**.**

For more information on SNMP, refer to SNMP Interface**, or go to:** www.microsoft.com.

Appendix A
Accessories

Overview

This appendix covers the following topics:

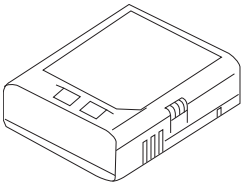
Contact your Datalogic Mobile reseller for accessories and supplies for the Falcon; you can see the options in this appendix or check the Datalogic Mobile website.

Power Supplies

Use only the correct battery chargers and docks with this Windows CE color Falcon. This technology used for these models is incompatible with other Datalogic Mobile Falcon chargers and docks.

Battery Pack

Figure A-1. 4-Battery Pack



Single-Slot Dock

Figure A-2. Single Slot Dock

Four-Slot Dock

Figure A-3. Four-Slot Dock

Battery Charger

Figure A-4. Li-Ion Battery Charger

Four-Slot Battery Charger

USB Cable

See Figure E-1 on page E-1.

Serial Charging Cable

See Figure E-2 on page E-2.

Printer Cable

See Figure E-3 on page E-2.

Serial Printer Adapter

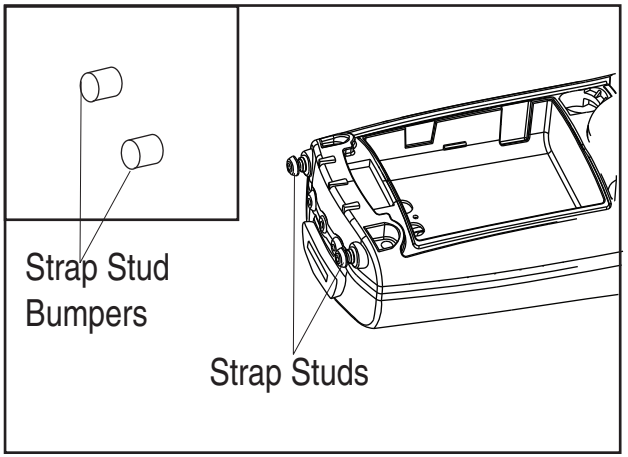
The Serial Printer Adapter attaches to the bottom of a Falcon unit and allows you to print directly to a printer.

Figure A-5. Serial Printer Adapter

To attach the printer adapter to a Falcon, you must remove the strap studs, as well as the optional strap stud bumpers, if present. Use the procedure that follows.

Removing Strap Studs/Bumpers

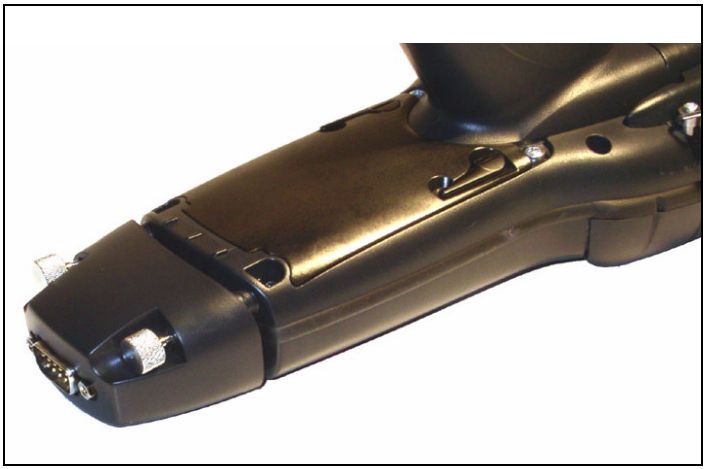
Figure A-6. Strap Studs



1. Loosen and pull off the strap stud bumpers (if present). If necessary, pry off using a screwdriver.
2. Use a 5/64” Allen wrench (included with the printer adapter) to loosen and remove each Strap Stud.

Once you have removed the strap studs, attach the adapter to the Falcon by tightening the thumbscrews on the adapter.

Figure A-7. Attaching the Serial Printer Adapter



Holsters and Softcases

A holster and a softcase are available that will work with both the Falcon 4410 and the handled Falcon 4420 models.

Holsters

Figure A-8. Three Holster Views

- Quick release swivel belt mount (clip on both sides for left or right mount)
- Heavy duty nylon

Softcases

Figure A-9. Softcase for Handled Falcon 4420

- Belt clip option
- Stylus holder
- Open cover
- Heavy duty nylon
- Scanner window

Installing the Handle or Handstrap

The Falcon 4420 comes from the factory with the handle installed. The Falcon 4410 comes with a handstrap. These can be exchanged with a change-out kit. The handle is removable and can be replaced with a handstrap. When you replace the handle with the handstrap, you lose the ability to press the trigger on the handle and must use the **<Scan>** key on the Falcon keypad instead.

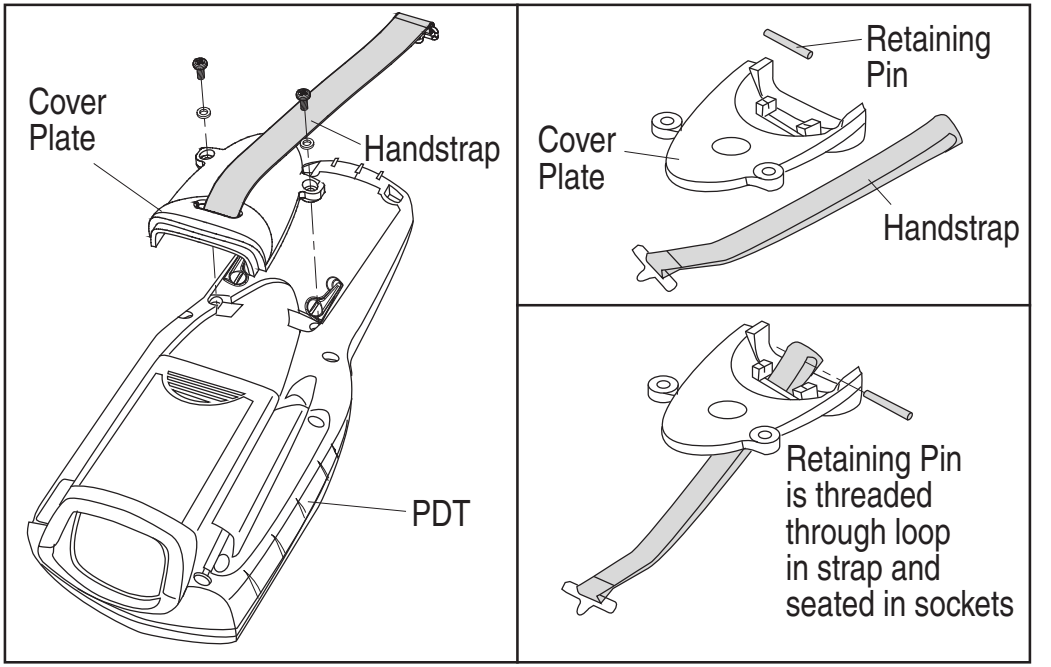
To remove the handle and replace it with the handstrap refer to the following sections. Reverse the same directions to replace the handstrap with the handle.

Installing the Handstrap on the Falcon 4420

To install a handstrap on the Falcon 4420, complete the following steps:

1. Remove the handle as shown in Figure A-11 by removing the screws located just above the battery cover's latch dials.
2. Insert the top tab of the handstrap cover into the slot at the top of the handle recess. (refer to Figure A-10)

Figure A-10. Removing/Replacing a Handstrap



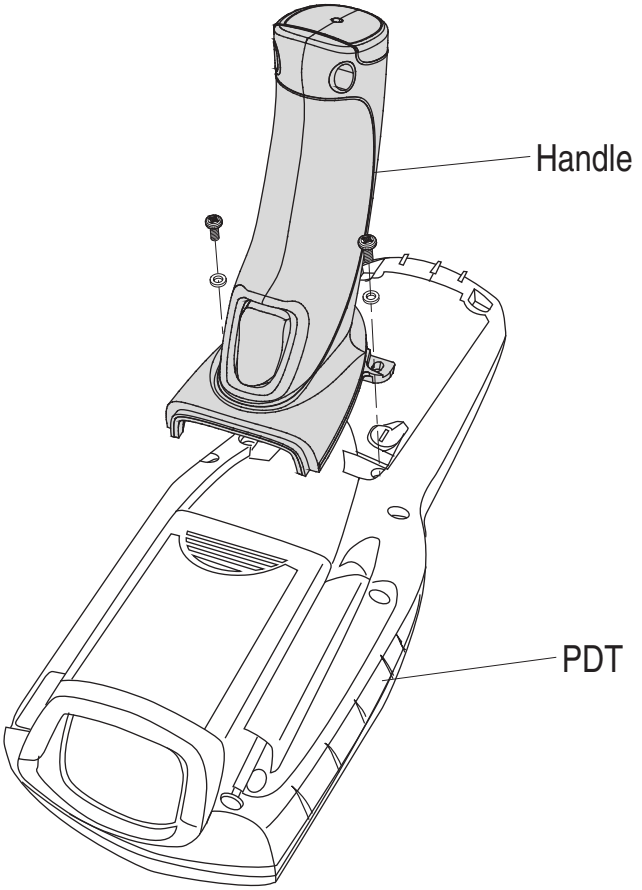
3. Replace the screws located just above the battery cover's latch dials.
4. Connect the handstrap hook onto one of the strap studs at the base of the Falcon.
5. The process is complete upon successful test of the scanning function.

Installing a Handle on the Falcon 4410

To install the handle on the Falcon 4410, complete the following steps:

1. Remove the handstrap as shown in Figure A-10 by removing the screws located just above the battery cover's latch dials.

Figure A-11. Removing/Replacing the Handle



2. Insert the top tab of the handle into the slot at the top of the handle recess (refer to Figure A-11).
3. Replace the screws located just above the battery cover's latch dials.
4. The process is complete upon successful test of the trigger function.

Tethered Stylus

An optional Tethered Stylus is available for use on any of the Falcon 4400 series models. The Tether attaches the stylus to the Falcon unit, preventing the stylus from accidentally becoming lost or misplaced.

Installing a Tethered Stylus

If your Falcon did not come with a Tethered Stylus, it can be easily installed.

To install a Tethered Stylus on the Falcon 44xx complete the following steps:

1. Turn the Falcon face-down. Ensure that power is OFF.
2. Using a Phillips screwdriver, remove the 6 mm screw at the bottom of the Stylus holder.
3. Use the longer 16 mm screw included with the Tethered Stylus kit to attach the Tethered Stylus to the Falcon.

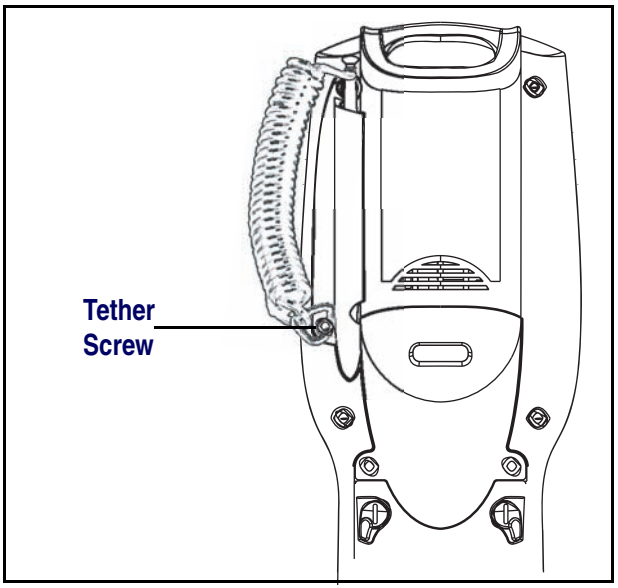
CAUTION

Do not use the 16mm long screw that came with the Tethered Stylus without the Tether. Damage to internal components could occur if the screw is used without the Tether, since the screw is longer than the standard 6 mm screw used without the Tether.

4. Slide the other end of the Tether through the Stylus.

This completes Installation of the Tethered Stylus.

Figure A-12. Installing/Removing a Tethered Stylus



Removing a Tethered Stylus

If you want to remove the Tether from your Falcon 44xx, complete the following steps:

1. Turn the Falcon face down. Ensure that power is OFF.
2. Using a Phillips screwdriver, remove the 16 mm screw at the bottom of the Stylus holder that attaches the Tether to the PDT.
3. Use the shorter 6 mm screw included with your Falcon to reattach the Stylus Holder to the Falcon.

CAUTION

Do not use the 16 mm long screw that came with the Tethered Stylus without the Tether. Damage to internal components could occur if the screw is used without the Tether, since the screw is longer than the standard 6 mm screw used without the Tether.

Removal of the Tethered Stylus is complete.

NOTES

Appendix B
Falcon® Desktop Utility for Windows® CE

Overview

Falcon® Desktop Utility (FDU) allows Datalogic Mobile Falcon® Windows® administrators to configure Falcon Windows® CE Falcons to control individual user access. This includes:

- Prevent users from changing Falcon OS settings.
- Define keys to access specific functionality/programs.
- Use Application Selector to replace desktop with a selection of authorized applications.
- Internet Explorer access restriction, configuration and customized recovery mechanisms.

This section covers the following information:

Falcon Desktop Utility

To open the **FDU** for the first time, select **Start > Settings > Falcon Config**.

Figure B-1. Accessing FDU

These options are available from all screens:

Table B-1. Options Available on all Screens

Command	Description
OK	Tap **OK** to apply the settings and modifications you have made in the FDU tabs. **OK** saves every modification.
X	Tap **X** to cancel the settings and modifications you have made in the FDU tabs. **X** cancels all modifications you have made in **FDU**.

Administrative Options

When you open the Falcon **Admin** control panel, the **FMU** tab will open. Select the **Admin** tab to set up FDU.

Figure B-2. Setting a Password/Admin Tab Fields

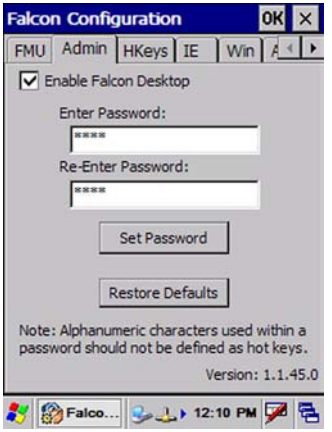


Table B-2. Setting a Password/ Admin Tab Fields

Command	Description
Enable Falcon Desktop	Select/tap this checkbox to activate the **FDU** functions such as Hot Key assignments, IE Restrictions, Windows Settings, and the authorized application menu.
Enter Password	Enter a password in the text box. This allows the user to specify a password when this utility is launched. By default there is no password. A password can consist of all standard keyboard characters.
Re-Enter Password	Carefully re-enter the password in the second text box.
Set Password	Select/tap **Set Password** to enable the password. To change or remove the password, enter a new value, re-enter the new value, and select/tap **Set Password**.
Restore Defaults	Select/tap **Restore Defaults** to reset the default values of all the functions on all the tabs. After you select this option, you will receive a prompt to verify this selection.

Setting a Password

To set a password:

1. Enter a password in the field. This allows the user to specify a password when this utility is launched. By default there is no password set.

Be sure to record the Password for future reference.

2. Re-enter the password in the second field.
3. Select/tap **Set Password** to enable the password.
4. Select/tap **OK** close the **Set Password Confirmation** dialog.

You must select/tap Set Password prior to exiting FDU in order to store and activate your new password. It is not necessary to select Enable Falcon Desktop.

If you select/tap Restore Defaults it will remove all custom settings and restore all the factory default settings, except a previously set password.

CAUTION

Changing a Password

To change to a new password:

1. Enter a new value in the **Enter Password** field.
2. Re-enter the new value in the **Re-enter Password** field.
3. Select/tap **Set Password**.

Removing a Password

To remove a password:

1. Enter blanks in both **Password** fields.
2. Select/tap **Set Password**.

Password Request Dialog Box

Once the password is set, the next time you open the **Falcon Desktop Utility**, the **FDU Password** dialog box opens.

This dialog box will only open if a password was defined.

Figure B-3. Setting a Password

Table B-3. Setting a Password Dialog

Command	Description
Enter Password	Enter your password using the keypad, or using the stylus on the soft input panel (**SIP**) in the text box.
OK	Select/tap **OK** to accept the password.
X	Select/tap **X** to cancel the request to start the **FDU**.

Complete the **FDU Config** dialog:

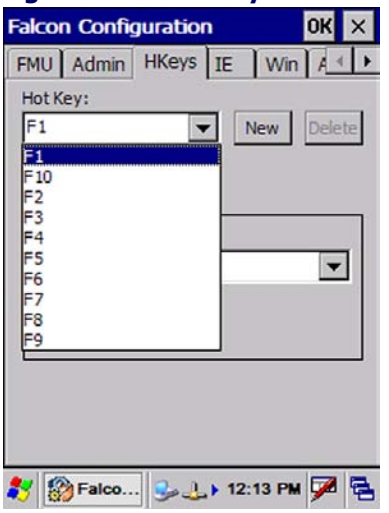
1. Type in your password using either the keypad on the unit, or using the stylus on the soft input panel (**SIP**).
   If you enter an incorrect password, the system will prompt you to input the correct one.
2. Select/tap **OK** to verify the password. Or tap **X** to cancel.

Setting Hot Keys

You can use Hot Keys (HKeys) Tab to associate specific keys, such as **<F1>-<F10>**, with specific applications. You can also create a new **Hot Key** combinations ("Adding a New Hot Key" on page B-7). Select the **HKeys** tab to access these options.

For example, you could set **<F2>** to launch a sample application like:
`\Windows\pword.exe`.

Figure B-4. Hot Keys Tab



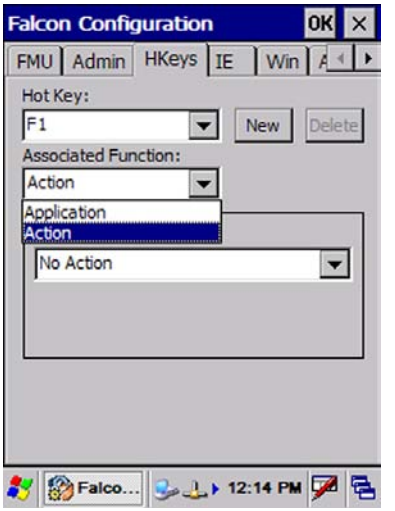


Table B-4. Hot Keys Tab Fields

Command	Description
Hot Key	This pull-down list displays the available function keys to define. Select the desired one from the list.
New	Select/tap to specify a new Hot Key, not on the **Hot Key** list. This opens a new dialog, shown on page B-7.
Delete	Tap to delete the selected **Hot Key**. You can only delete the Hot Keys you have added. You cannot delete **<F1> -<F10>**.
Associated Function	This pull-down list displays the available functions. Select either **`Application`** or **`Action`**.
Application	Displays path to the selected application.
Browse	Select/tap ... to browse for application files. You can associate an executable program with the specified **Hot Key**.
Arguments	Type the command-line arguments that are needed for the specified application. This option is only available when **`Application`** is selected in the **Associated Function** pull-down list.
Action	Specify an action to associate with a **Hot Key**. This list includes: **`SIP`**, **`toggle Taskbar`**, **`FDU Admin`**, and **`Application Switcher`**. This option is only available when **`Action`** is selected in the **Associated Function** pull-down list.

The **<F6>** is the key initially assigned to **FDU** Admin:

If you wish to assign this key to a different function, you must first select an unassigned Hot Key and assign it to the Action - **FDU** Admin. You can then go back and reassign the **FKey** to something else.

Table B-5. Falcon Models/Hot Keys Available

Falcon 4400 Series		
26-key models	**48-key models**	**52-key models**
Alpha-numeric	Alt + Alpha-numeric	Alt + Alpha-numeric
F1-F19	Alt + F1-F10	Alt + F1-F20
	F1-F10	F1-F20
	Alpha-numeric	Alpha-numeric

The administrator is responsible for verifying that these keys don't override existing functions. To prevent FDU Hot Keys from overriding existing application keys, select "No Action" in the Action combo box.

Adding a New Hot Key

When you select **New** on the **HKeys** tab, this opens the **Add New Hot Key** dialog box.

To define a new Hot Key, complete the following steps:

1. Enter the key combination to define a new Hot Key in the **Enter Key** textbox.
2. The **Note** displays important information indicating Hot Keys that should not be used.

Figure B-5. Add a New Hot Key

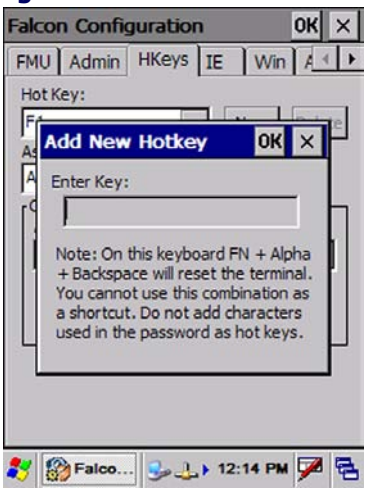


Table B-6. Adding a New Hot Key Dialog

Command	Description
Enter Key	Enter the desired key combination in this text box to define a Hot Key.
OK	Select/tap **OK** to add the specified Hot Key.
X	Select/tap **X** to cancel the specified Hot Key.

Make sure you do not attempt to add a Hot Key that is already defined.

3. Select/tap **OK** to save the **New Hot Key**. If you select/tap **X**, the key will not be saved.

It is possible for the keyboard wedge to activate assigned Hot Keys using alpha-numeric characters. Bar codes containing characters associated with assigned Hot Keys will trigger the action or application assigned to that Hot Key.

Internet Explorer Configuration

Tap the **IE** (Internet Explorer) tab to access the **IE Configuration** option. Use the **IE Error Redirection** option to provide customized recovery from common **IE** errors. When an error occurs, the browser can redirect access to a specified error page with instructions on how to recover from the problem.

Figure B-6. IE Configuration Tab / IE Window Features

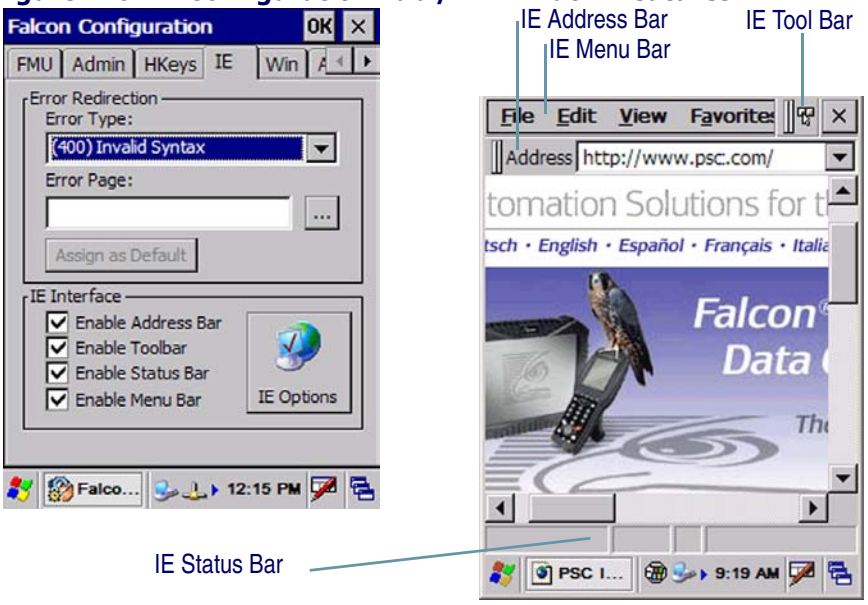


Table B-7. IE Tab Fields

Command	Description
Error Type	The **Error Types** pull-down list displays available **IE Error Types**:
	(400) Invalid Syntax, (403) Request Forbidden, (404) Object Not Found, (406) No Response Format, (410) Page Doesn't Exist, (500) Internal Server Error, (501) Server Can't Do That, Generic Error, Server Is Busy, Couldn't Find Server, URL Syntax Error, Request Cancelled, Not Available Offline
Error Page	Edit this textbox to associate a website or html file with the specified error.
Assign as Default	Select/tap to set a specified error page as the default. A confirmation dialog opens to ask if the default error page applies to all errors.
Browse	Select/tap to browse for files.
Show Address Bar	Select/tap this check box to show the **IE** address bar.
Show Tool Bar	Select/tap this check box to show the **IE** toolbar.
Show Status Bar	Select/tap this check box to show the **IE** status bar.
Show Menu Bar	Select/tap this check box to show the **IE** menu bar.

Internet Options

Tap **Internet Options** on the **IE** tab to open the Windows CE **Internet Options** control panel. Customize these settings as necessary.

The Internet Options control panel applet is part of the Microsoft® Windows® CE operating system.

For more information on the Windows CE operating system, please refer to the Microsoft website at http://www.microsoft.com.

CAUTION

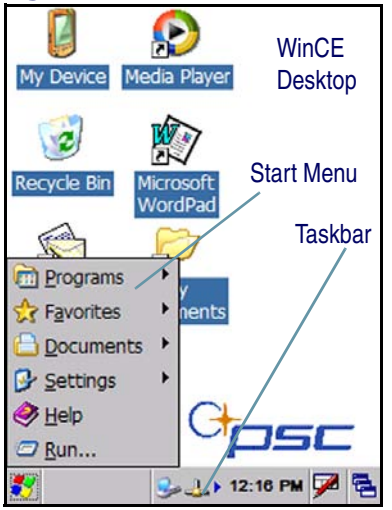
The FDU allows you to cancel prior to applying your changes. However, any settings modified in the Internet Options control panel applet through the FDU interface will be applied even if you later cancel the your modifications in the FDU.

Modifying Windows Controls

Select/tap the **Win** (Windows Controls) tab to access the **Windows Controls** option. Use Windows controls to allow or restrict access to Windows system functions.

You can disable normal Windows functions such as the desktop and taskbar, leaving nothing but a blank workspace. This allows applications to be run on the full screen and prevents users from accidental or unauthorized use of the taskbar, Internet Explorer, and any other resident applications.

Figure B-7. Windows CE Desktop and Win Tab



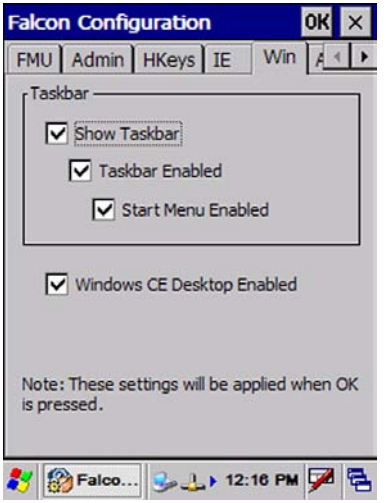


Table B-8. Win Tab Fields

Command	Description
Show Taskbar	Select/tap **Show Taskbar** to specify that the taskbar is shown or hidden.
Taskbar Enabled	Select/tap **Taskbar Enabled** to specify whether the taskbar is accessible. This option is only available when the **Show Taskbar** is checked.
Start Menu Enabled	Select/tap **Start Menu Enabled** to specify whether the **Start** menu is accessible or not. This option is only available when both **Show Taskbar** and **Task Bar Enabled** are checked.
Windows CE Desktop Enabled	Select/tap **Windows CE Desktop Enabled** to specify that the desktop icons are accessible or not.

Application Selector

Use the **Application Selector** (AppSelect Tab) function to edit, add, or delete applications for the application selector.

Figure B-8. AppSelect Tab

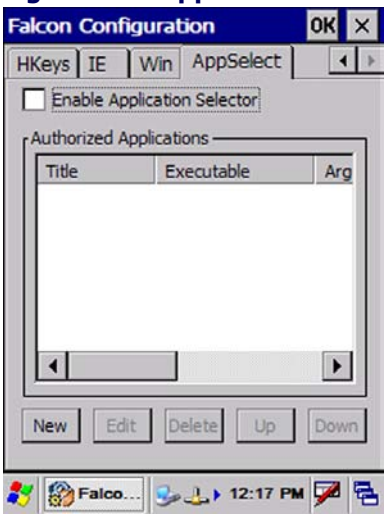


Table B-9. AppSelect Tab Fields

Command	Description
Enable Application Selector	Select/tap **Enable Application Selector** to enable/disable the application selector. When this is enabled, the **Application Selector** replaces the desktop and allows only authorized use of applications.
Authorized Applications	This is a list of applications that the user may access.
New	Select/tap **New** to create a new application entry.
Edit	Select/tap **Edit** to edit the selected entry.
Delete	Select/tap **Delete** to delete the selected entry.
Up/Down	Select/tap **Up/Down** to move an entry up or down in the listview.

Add Application

The **Add Application** dialog opens when you tap either **New** or **Edit**.

From the **Add Application** dialog the administrator can configure and/or add/change an a new application entry in the list.

Applications with the **Run Application at Startup** option enabled will start automatically when the **Application Selector** starts up.

Figure B-9. Add Application Dialog

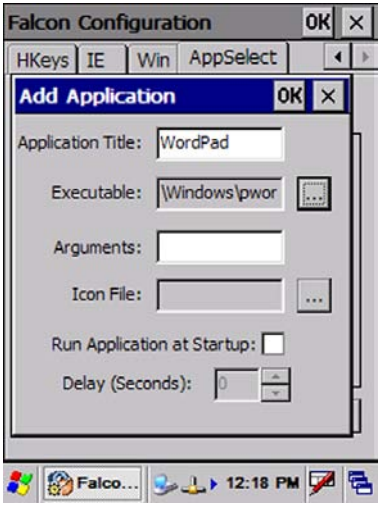


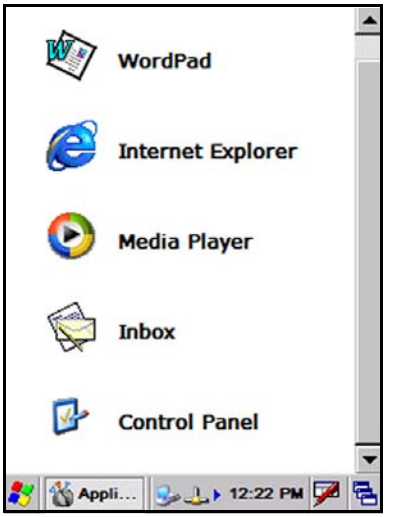
Table B-10. Add Application Dialog

Command	Description
Application Title	Type the name of the application in this textbox in the way you wish it to appear for the user.
Executable	Displays the path for the executable file which you want to run.
Browse	Select/tap  to browse for the desired executable file. The results of this search are placed in the **Executable** textbox.
Arguments	Type any command line arguments to be used when an application is executed.
Icon File	Displays the path/link to the desired icon file.
Browse	Select/tap  to browse for the desired icon file. The results of this search are placed in the **Icon File** textbox.
Run Application at Startup	Select/tap this box to force this application to auto start when the Application Selector starts up. Applications will be started in the order listed in the authorized application list.
Delay	Enter a delay duration in seconds in the combo box. This option delays auto start of application(s) to allow drivers to load prior to starting applications
OK	Select/tap **OK** to add/save changes.
X	Select/tap **X** to cancel the creation of this entry.

Application Selector

The administrator can choose for the user to have access to the desktop or not. The Application Selector can replace the desktop and limit the user to the specified list of applications.

Figure B-10. Application Selector



The user can select/tap the desired application.

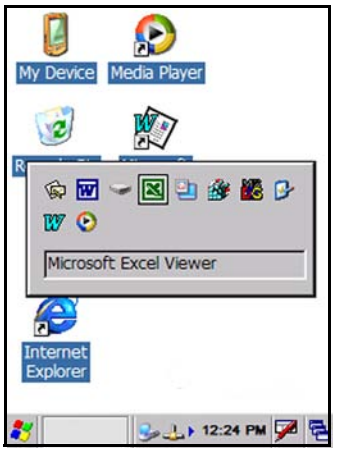
The administrator can customize this list as shown in "Application Selector" on page B-11.

Application Switcher User Interface

The application switcher provides the same functionality as the standard Windows® Alt+Tab function. This allows the user to cycle through the various open applications.

The <Esc> key can be used to close the Application Switcher.

The application switcher is activated via an assigned **Action** key specified in the **Hot Key** tab. (Refer to "Setting Hot Keys" on page B-5.) When the assigned **Hot Key** is pressed, the dialog shown to the right will be displayed.



The application switcher can only be assigned to a single **Hot Key**, not a **Hot Key** with modifier keys. For instance, **<Shift>+<F3>** cannot be assigned to the task switcher action, but **<F3>** can be.

Press the **Hot Key** assigned to open the application switcher. Press the assigned **Hot Key** to cycle through the running applications when the dialog is open. Press **<Enter>** to switch to the selected application or **<Esc>** to close the application switcher.

NOTES

Appendix C
Configuring the Web Server

Overview

The Web Server can perform several different actions, including generating a web page containing statistics relating to performance of the mobile computer. The Web Server can also be used for creating an interface for interaction with the Terminal to configure system behavior.

This section contains the following topics on configuring the Web Server:

Enabling the Web Server

By default the Web Server is disabled. The following demonstrates how to enable the Web Server:

1. On the Falcon 44xx, either through a CE-based registry editor or using the Remote Tools RemoteRegEdit included with eVC++ 4.0, modify the following registry entry:

   ```
   [HKEY_LOCAL_MACHINE\COMM\HTTPD]
   "Enabled"=dword:1
   ```

2. In a Command Prompt window on the Terminal, type the following:

   ```
   \> services list
   ```

   This will display a list of loaded and services and their state.

3. If the service **HTP0:** is not listed, then type the following to load the HTTP Web Server:

   ```
   \> services load httpd
   ```

4. If the service is listed and not running, type the following to start the HTTP Web Server:

   ```
   \> services start HTP0:
   ```

5. To restart the Web Server, type:

   ```
   \> services refresh HTP0:
   ```

This will cause the Web Server to reload any information pertaining to the Web Server in the registry. For additional information on the registry entries, see "Web Server Registry Settings" on page C-4.

To configure the Web Server to allow access to the Web and Net administration pages:

1. On the Falcon 44xx create the following registry entries:

   ```
   [HKEY_LOCAL_MACHINE\COMM\HTTPD\VROOTS\/NetAdmin]
   "Default" = "\windows\natadmin.dll"
   [HKEY_LOCAL_MACHINE\COMM\HTTPD\VROOTS\/WebAdmin]
   "Default" = "\windows\httpdadm.dll"
   ```

2. In a Command Prompt window on the Terminal, type the following:

   ```
   \> services refresh HTP0:
   ```

Setting Up a User

The following example demonstrates how to set up a user named **Testuser** in a group called **Testgroup**.

To configure **User** and **Group Permissions** for the Web Server:

1. On the Falcon 44xx, launch Internet Explorer and type the following address in the address bar: http://localhost/NetAdmin. The Web-based network configuration utility appears.
2. Fill in the **Enter new password** and **Confirm new password** boxes, then click **Submit** on the bottom of the page.
3. On the menu bar of the displayed web page, click the **User Accounts** link. The **Enter Network Password** dialog box appears.
4. Type **Admin** in the **User Name** box, and type the password that you specified above in the **Password** box. Leave the **Domain** box empty.
5. Click **OK**. The **User Manager** Setup page appears.

6. In the **Logon Name** dialog, type **Testuser** in the **Create a new user** box, then click **Create**.The **User Manager Setup** page appears.
7. On the **User Configuration** page, type a password for **Testuser**, confirm the password, and then click **Create Account**. The new user will appear below the **Logon Name** box on the **User Manager Setup** page.
8. In the **User Group Setup** box, type **Testgroup** in the **Create a new group** box. Click **Create**.
9. Click **Return to user configuration page** to return to the **User Manager Setup** page. The new group will appear below the **Group Name** box on the **User Manager Setup** page.
10. Click **Modify** beside the **Group Name** box containing **Testgroup**. The **Group Configuration** page appears.
11. Select the check box in the **Member of group?** column for **Testuser**, and then click **Submit Changes**.

You have now added **Testuser** to the **Testgroup** group.

You can also create users programmatically by calling the NTLMSetUserInfo function. Windows CE also exposes the NTLMDeleteUser function, which is used to delete a user from the local database, and the NTLMEnumUser function, which is used to enumerate users in the local database.

Testing the Web Server

After you have created your user accounts and groups for the Web Server, you can test the Web Server by launching the Web Server configuration page from a host PC. This will demonstrate that your user has been granted administrative rights for the Web Server and therefore can access any virtual directory on the Web Server.

To launch the Web Server configuration page from your host PC:

1. On the Falcon 44xx, verify that the **Connected Network** icon appears on the taskbar. This icon indicates you are connected to the network.
2. Double-click the **Network** icon, and then select the **IP Information** tab to obtain the Falcon's IP address.
3. On the PC, launch Internet Explorer and type the following information in the address bar: http://<IP address from Falcon 44XX>/Webadmin.

4. The **Web Server Login** dialog appears. Type **Admin** in the **User Name** box and enter the password you specified. Click **OK**, and the **Web Server Configuration** page will appear.
5. Scroll to the bottom of the page, and click **Modify** to the right of the **Default Website** box. The **Default Website** page appears.
6. Click the link to **Configure the Virtual Directories**. The **Virtual Directory Configuration** page appears.
7. Verify that the following virtual directories are listed on the page:

   /WebAdmin/

   /NetAdmin/
8. Click **Return to the Default Website** configuration page. The **Default Website page** appears.
9. Click **Configure the Administrative Users for this Website**. The **Administrative Users** page appears.
10. Select **Enabled** for **Testuser**, and then click **Update**. A message telling you that your modifications have been saved and asking you to restart the Web Server appears at the top of the page.
11. To restart the Web Server, select **Restart Web Server** from the menu bar.

Launching the Network Administration Page

To launch the network administration page from your host PC:

1. Open Internet Explorer and type the following information in the address bar: http://<IP address from Falcon 44XX>/NetAdmin. A dialog box asking for the user name and password appears.
2. Type **Testuser** in the **User name** box and the password you created for this user in the **Password** box, and then click **OK**. The **Network Administration** page appears.

Web Server Registry Settings

To gain access to a virtual path, a user must be authenticated using NTLM authentication or Basic authentication. Specify the authentication level by setting the **"a"** value for each virtual path.

For more information on the registry settings and what each key represents, see the Windows® CE SDK help documentation included with embedded Visual C++ 4.0 SP2. The help file contains a wealth of information on this topic.

Adding these values will create virtual root directories for the Basic and NTLM-based authentication methods.

```
[HKEY_LOCAL_MACHINE\COMM\HTTPD\VROOTS\/WebAdmin]
@="\\windows\\httpdadm.dll"
"a"=dword:0
[HKEY_LOCAL_MACHINE\COMM\HTTPD\VROOTS\/BasicOnly]
@="\\"
"a"=dword:1
"Basic"=dword:1
"NTLM"=dword:0
[HKEY_LOCAL_MACHINE\COMM\HTTPD\VROOTS\/NTLMOnly]
@="\\"
"a"=dword:1
"Basic"=dword:0
"NTLM"=dword:1
[HKEY_LOCAL_MACHINE\COMM\HTTPD\VROOTS\/BothAuth]
@="\\"
"a"=dword:1
"Basic"=dword:1
"NTLM"=dword:1
```

CAUTION

Setting the "a" value to zero (0) enables anonymous users to have access to all files in the virtual directory. This potentially opens the device up to hackers. Setting this value to zero (0) is permissible for internal development and testing purposes. However, you should never ship a Web Server device with the "a" value set to zero (0) for any configuration page.

To set the password for the entire Web Server device for Basic authentication, you can create a configuration application that runs on the device and calls the SetPassword function. Setting the password programmatically through SetPassword is the equivalent of the device password setting that you add in Control Panel.

Creating and Using an ISAPI Service

Developers can create an ISAPI service written in eVC++ to access the APIs available on the Terminal. The two sample .dlls below demonstrate setting and getting a few of the configurable items available in the Falcon 44xx SDK.

Setting Configuration Items

The following example shows how to set the Code 39 minimum label length to 10 characters:

1. Create a virtual directory under the root called **SetSym** and set the Default registry entry to **SetSym.dll** while making sure the full path is included.

   ```
   [HKEY_LOCAL_MACHINE\COMM\HTTPD\VROOTS\/SetSym]
   @="\\windows\\SetSym.dll"
   ```

2. Restart the Web Server as described on page C-2.
3. Enter the following information into Internet Explorer on the Terminal or host PC:

   ```
   http://<ip address of Terminal>/SetSym?CD39MIN&10
   ```

Getting Configuration Items

The following example demonstrates how to get all the settings for Code 39:

1. Create a virtual directory under the root called GetSym and set the Default registry entry to GetSym.dll while making sure the full path is included.

   ```
   [HKEY_LOCAL_MACHINE\COMM\HTTPD\VROOTS\/GetSym]
   @="\\windows\\GetSym.dll"
   ```

2. Restart the Web Server as described in the first section. (C-2)
3. Enter the following information into the Internet Explorer on the Terminal or desktop computer:

   ```
   http://<ip address of Terminal>/GetSym?C39
   ```

These two samples are only the beginning of what can be accomplished with the Web Server. Please note that ISAPI is currently the only method of server-side method invocation. Please consult the Help file associated with the SDK and eVC++ for more information on ISAPI and Web Server features.

Appendix D
SNMP Interface

Overview

SNMP Concepts

Simple Network Management Protocol (SNMP) is a standardized protocol for network management services using a client/server model. The network management program (client) issues queries and commands to the remote device (agent/server). The protocol itself defines a number of variable types and structures, and the rules for using them for data transfer. Using these variable types and rules, there are a number of standard variables that are supported by all SNMP agents. These standards include network addressing (IP address, subnet mask, etc.), and network statistics (total packets, bad packets, etc.).

FMU uses Simple Network Management Protocol (SNMP) to perform many of its functions. When the Terminal Configuration or Terminal Report function is selected, SNMP is used to query the Terminal for its current Configuration settings, as well as current status information such as battery status and memory usage. In the same function, SNMP is used to update Terminal Configuration settings when directed to. SNMP is also used by the FMU Servers to perform the automated Group Configuration update. The Server issues SNMP queries to discover the current Terminal Configuration, then uses SNMP commands to update any Configuration settings that need it.

MIB Files

A Management Information Base (MIB) is a file that defines a set of SNMP variables, their types and usage. There are a number of standard MIBs available, depending on the information being managed.

Datalogic MIBs

Beyond the standard values, SNMP allows manufacturers to define their own private MIBs. For example, Datalogic has been assigned an MIB by the Internet Assigned Numbers Authority that allows Datalogic to define SNMP values relating specifically to devices that we manufacture. Within the Datalogic MIB, several categories of values have been defined including scanner Configurations, Terminal power Configurations and Terminal network parameters.

The format of an MIB follows rules laid out in the appropriate standards, allowing the manufacturers of network management tools such as HP OpenView and CastleRock SNMPc to make use of the MIBs developed by manufacturers. So by following the procedures used by the management tool, the MIB can be processed by the tool allowing the proper display of SNMP values retrieved from the agent.

For example, if the Datalogic MIB is loaded into OpenView, the administrator can then view all of the values defined by Datalogic using the names assigned by Datalogic, as well as a brief explanation of what each value represents. This will also allow the administrator to update most values, and provides range checking information for the tool to take advantage of. The current Datalogic MIB can be found on the Datalogic Mobile website in the Downloads area.

Additional Resources

Additional information on SNMP can be found at the following websites:

www.snmplink.org

www.snmpworld.com

www.simpleweb.com

Appendix E
Cable & Connector Configurations

Introduction

The following pages contain information about standard interface cables for use in interconnecting the Dock to power and/or peripheral devices.

General Specifications

Wire Requirements

- Cable length should not exceed 15 feet.
- Wire gauge = Standard for RJ-45 connectors (28-26 AWG).

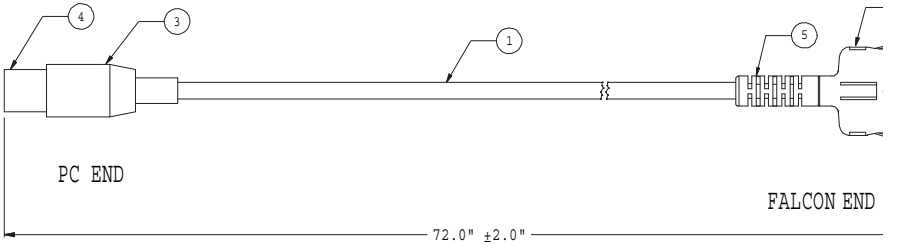
Supply Voltage

Current power supply voltage = 12V, 2.5 amp.

USB Cable

Figure E-1 illustrates the connector configuration of the USB cable for the Falcon.

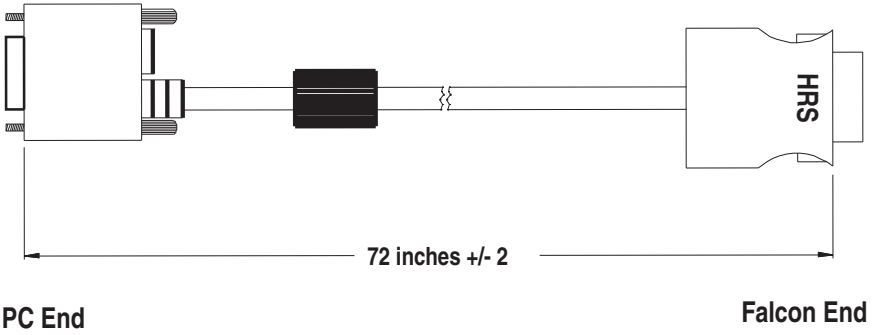
Figure E-1. USB Connector Configurations



Serial Cable

Figure E-2 illustrates the connector configuration of the Serial cable for the Falcon.

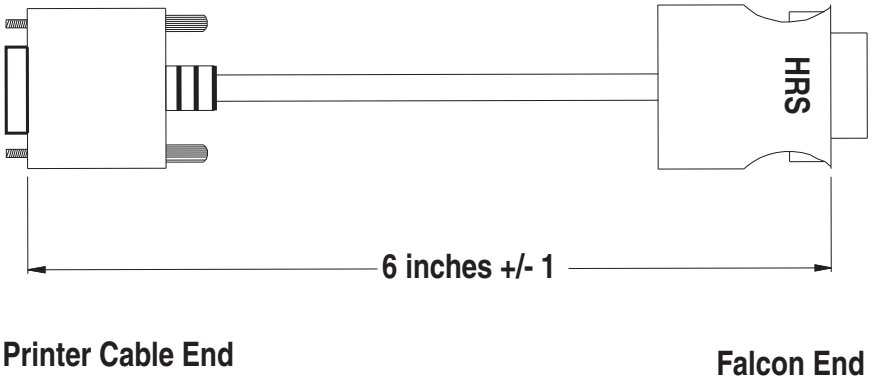
Figure E-2. Serial Connector Configurations



Printer Cable

Figure E-3 illustrates the connector configuration of the Printer cable for the Falcon.

Figure E-3. Printer Connector Configurations



Appendix F
Programming Parameters

Overview

This section contains information about programmable settings for the Falcon 4400 Windows Mobile Falcon. Use the Falcon Management Utility (FMU), the Decoding Control Panel applet, the Imaging or OCR Control Panel applets, or the bar codes provided in Appendix G to program the Falcon.

Table F-2 starting on page F-3 provides the following information:

- **Code Parameter** is the "human" name for the programming option.
- **I.D. #** is the "decoder" name for the programming option. For example, to set a Code 39 minimum label length, use I.D. **0120**. Programming I.D. numbers given in this appendix can be used with all programming methods.
- **On/Off** is a toggle. **1** turns the parameter on, and **0** turns it off.
- **Acceptable Input** gives the settings or range of settings for each code parameter.
- **Defaults** indicates how the parameter is set when the predefined default **FF39**, **FF3A**, or **FF3B** is selected.
  - **Minimum (FF39)** turns every on/off parameter off and sets all minimum and Maximum Label Lengths to the lowest values.
  - **Maximum (FF3A)** turns every on/off parameter on, sets all Minimum Label Lengths to the lowest values, and sets all Maximum Label Lengths to the highest values. Use this default for troubleshooting; it provides the best settings for reading an unknown bar code symbology and can identify the symbology of scanned bar codes.
  - **Factory (FF3B)** is the factory setting installed on the Falcon. This default set will work for most applications. To reset the Falcon to the original defaults, scan the **Factory** bar code on page G-3.
- **Scanner Type** shows, with a checkmark, which modules support the specified parameter.

Programming Codes Without Parameters

The following table describes the functions of special bar codes that take no parameters:

Table F-1. Programming Codes Without Parameters

Code Parameter	I.D. #	Function
Defaults Minimum	**FF39**	Turns every On/Off parameter off and sets all minimum and Maximum Label Lengths to the lowest values.
Defaults Maximum	**FF3A**	Turns every On/Off parameter on and sets all minimum and Maximum Label Lengths to the highest values. This default set is normally used only for troubleshooting. It gives the best chance of reading an unknown bar code symbology and also identifies the symbology of each bar code scanned.
Defaults Factory	**FF3B**	This is the default parameter settings that was installed at the factory. This default set will work for most applications.
Defaults Registry	**FF3C**	This restores all parameter settings to the values that exist in the registry. This is useful for restoring parameters to a known working set of values which have been saved using code parameter **FF3F**.
Exit and Restore	**FF3D**	Stops a label programming sequence and restores all parameter settings to the values that exist in the registry.
Exit and Save	**FF3E**	Stops a label programming sequence. The last valid parameter settings are left intact.
Exit and Commit	**FF3F**	Stops a label programming sequence and writes all parameter settings into the registry. This can be used to save a customized set of parameter settings for restoring later via parameter **FF3C**.

Bar Code Parameters

The following table lists the standard customer programmable settings for the Falcon.

Table F-2. Programmable Standard Bar Code Settings

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Codabar			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the Codabar sym-bology.	0300	On or Off	Off	On	On	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0301	On or Off	Off	On	Off	✓	
Enable Checksum	Requires the use of checksum characters to verify a bar code.	0302	On or Off	Off	Off	Off	✓	✓
Send Checksum	Instructs the terminal to include the checksum in the label transmission	0303	On or Off	Off	Off	Off	✓	✓
Concate-nate	Allows the decoder to retain and join together a series of specially formatted labels, and then send a single transmission of the entire result.	0304	On or Off	Off	Off	Off		✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Send Start/ Stop	Instructs the decoder to transmit the decoded start and stop characters of Codabar labels. The start and stop characters will both be translated as A, B, C, or D.	0305	On or Off	Off	On	Off	✓	✓
Convert to CLSI	Restricts the Codabar decoder to only read labels that conforms to CLSI specifications. Label length must be 14, and the data is split into fields of 1, 4, 5, and 4 characters separated by spaces.	0306	On or Off	Off	Off	Off	✓	
Allow Wide Interchar-acter Gaps	Allows wide gaps to appear between characters in a label.	0307	On or Off	Off	On	On	✓	
Minimum Label Length	Set the minimum label length to be less than or equal to maximum label length.	0320	01 - 50	01	01	04	✓	✓
Maximum Label Length	This feature specifies the maximum allowable length of a Codabar label. The length includes check and data characters. Maximum Label Length should be greater than or equal to Minimum Label Length.	0321	01 - 50	01	50	20	✓	✓
Read Veri-fication	Sets the number of times a label must be read before it is transmitted.	0322	01 - 04	01	02	01	✓	

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0323	Any single ASCII character (00 = Off)	'I'	'I'	'I'	✓	✓
Code 39			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the Code 39 symbology.	0100	On or Off	Off	On	On	✓	✓
Enable Aggressive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0101	On or Off	Off	On	Off	✓	
Enable Checksum	Requires the use of checksum characters to verify a bar code.	0102	On or Off	Off	Off	Off	✓	✓
Send Checksum	Instructs the terminal to include the checksum in the label transmission.	0103	On or Off	Off	Off	Off	✓	✓
Full ASCII Mode	Supports the entire ASCII character set by replacing various encoded ASCII characters with their corresponding ASCII equivalents.	0105	On or Off	Off	On	On	✓	✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Concatenate	Allows the decoder to retain and join together a series of specially formatted labels, and then send a single transmission of the entire result.	0104	On or Off	Off	Off	Off		✓
Minimum Label Length	Set the minimum label length to be less than or equal to maximum label length.	0120	01 - 50	01	01	01	✓	✓
Maximum Label Length	This feature specifies the maximum allowable length of a Code 39 label. The length includes check and data characters. Maximum Label Length should be greater than or equal to Minimum Label Length.	0121	01 - 50	01	50	20	✓	✓
Read Verification	Sets the number of times a label must be read before it is transmitted.	0122	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0123	Any single ASCII character (00 = Off)	'C'	'C'	'C'	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Code 93			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the Code 93 sym-bology.	0400	On or Off	Off	On	Off	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0401	On or Off	Off	On	Off	✓	
Minimum Label Length	Set the minimum label length to be less than or equal to maximum label length.	0420	01 - 50	01	01	02	✓	✓
Maximum Label Length	This feature specifies the maximum allowable length of a Code 93 label. The length includes check and data characters. Maximum Label Length should be greater than or equal to Minimum Label Length.	0421	01 - 50	01	50	20	✓	✓
Read Veri-fication	Sets the number of times a label must be read before it is transmit-ted.	0422	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0423	Any single ASCII charac-ter (00 = Off)	'L'	'L'	'L'	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Code 128			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the Code 128 symbology.	0408	On or Off	Off	On	On	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0409	On or Off	Off	On	Off	✓	
Enable UCC/EAN-128	Instructs the decoder to recognize UCC-128 versions of Code 128 labels and process them differently by changing the Code ID, and replacing each occurrence of the FNC1 character with GS (ASCII 29) characters.	040C	On or Off	Off	On	Off	✓	✓
ISBT Con-catenation	Instructs the decoder to concate-nate Code 128 labels conforming to the ISBT 128 standard.	040E	On or Off	Off	Off		✓	✓
Minimum Label Length	Set the minimum label length to be less than or equal to maximum label length.	0424	01 - 50	01	01	02	✓	✓
Maximum Label Length	This feature specifies the maximum allowable length of a Code 128 label. The length includes check and data characters. Maximum Label Length should be greater than or equal to Minimum Label Length.	0425	01 - 50	01	50	20	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Read Veri-fication	Sets the number of times a label must be read before it is transmit-ted.	0426	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0427	Any single ASCII charac-ter (00 = Off)	'K'	'K'	'K'	✓	✓
European Article Numbering-13 (EAN-13)			**Enter 1 for On and 0 for Off.**					
Enable	Enables/disables the EAN-13 sym-bology.	0510	On or Off	Off	On	On	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0511	On or Off	Off	On	Off	✓	
Send Check Digit	Includes a check digit in the label which is transmitted.	0512	On or Off	Off	On	Off	✓	✓
Send Sys-tem Digit	This instructs the decoder to include the system digit in the label transmission. For UPC-E, the sys-tem digit is zero.	0513	On or Off	Off	On	On	✓	

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Convert EAN-13 to ISBN	This instructs the decoder to identify ISBN labels and append the check digit (per ISBN guidelines) to the end of the label.	0514	On or Off	Off	Off	Off	✓	
Convert EAN-13 to ISSN	This instructs the decoder to identify ISSN labels and append the check digit (per ISSN guidelines) to the end of the label.	0515	On or Off	Off	Off	Off	✓	
Enable EAN 4-Digit Price/ Weight Check Digit	Requires the use of a 4-digit price/ weight check digit to verify a bar code.	0516	On or Off	Off	Off	Off	✓	
Enable EAN 5-Digit Price/ Weight Check Digit	Requires the use of a 4-digit price/ weight check digit to verify a bar code.	0517	On or Off	Off	Off	Off	✓	
Read Verification	Sets the number of times a label must be read before it is transmitted.	0524	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent by the decoder when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0525	Any single ASCII character (00 = Off)	'M'	'M'	'M'	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
European Article Numbering-8 (EAN-8)			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the EAN-8 sym-bology.	0518	On or Off	Off	On	On	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0519	On or Off	Off	On	Off	✓	
Send Check Digit	Instructs the terminal to include the check digit in the label transmis-sion.	051A	On or Off	Off	On	Off	✓	✓
Convert EAN-8 to EAN-13	Instructs the decoder to expand EAN-8 labels to their EAN-13 equivalents. Any EAN-13 parame-ters will then apply to the result.	051B	On or Off	Off	On	Off	✓	
Read Veri-fication	Sets the number of times a label must be read before it is transmit-ted.	0526	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent by the decoder when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0527	Any single ASCII charac-ter (00 = Off)	'G'	'G'	'G'	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Interleaved 2 of 5			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the Interleaved 2 of 5 symbology.	0210	On or Off	Off	On	On	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0211	On or Off	Off	On	Off	✓	
Enable Checksum	Requires the use of checksum characters to verify a bar code.	0212	On or Off	Off	Off	Off	✓	✓
Send Checksum	Instructs the terminal to include the checksum in the label transmission.	0213	On or Off	Off	Off	Off	✓	✓
Enable Case Code	Restricts Interleaved 2 of 5 label lengths to only 6 and 14 data char-acters. Enabling this parameter overrides the minimum and maxi-mum length values.	0214	On or Off	Off	Off	Off	✓	
Minimum Label Length	Set the minimum label length to be less than or equal to maximum label length.	0228	02 - 50	02	02	06	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Maximum Label Length	This feature specifies the maximum allowable length of a Interleaved 2 of 5 label. The length includes check and data characters. Maxi-mum Label Length should be greater than or equal to Minimum Label Length.	0229	02 - 50	02	50	10	✓	✓
Read Veri-fication	Sets the number of times a label must be read before it is transmit-ted.	022A	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent by the decoder when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	022B	Any single ASCII charac-ter (00 = Off)	'B'	'B'	'B'	✓	✓
Matrix 2 of 5			**Enter 1 for On and 0 for Off.**					
Enable	Enables/disables the Matrix 2 of 5 symbology.	0208	On or Off	Off	On	Off	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0209	On or Off	Off	On	Off	✓	
Enable Checksum	Requires the use of checksum characters to verify a bar code.	020A	On or Off	Off	Off	Off	✓	

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Send Checksum	Instructs the terminal to include the checksum in the label transmission.	020B	On or Off	Off	Off	Off	✓	
Minimum Label Length	Set the minimum label length to be less than or equal to maximum label length.	0224	01 - 50	01	01	06	✓	✓
Maximum Label Length	This feature specifies the maximum allowable length of a Matrix 2 of 5 label. The length includes check and data characters. Maximum Label Length should be greater than or equal to Minimum Label Length.	0225	01 - 50	01	50	10	✓	✓
Read Verification	Sets the number of times a label must be read before it is transmitted.	0226	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent by the decoder when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0227	Any single ASCII character (00 = Off)	'D'	'D'	'D'	✓	✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
MSI			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the MSI symbology.	0608	On or Off	Off	On	Off	✓	✓
Enable Aggressive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0609	On or Off	Off	On	Off	✓	
Require 2 Check Digits	An MSCI label must contain 2 check digits.	060A	On or Off	Off	Off	Off	✓	
Send Check Digits	This instructs the decoder to include any enabled check digit(s) in the label which is transmitted.	060B	On or Off	Off	On	Off	✓	✓
2nd Check Digit Mod 11	Instructs the decoder to interpret any second MSI check digit as modulo 11 instead of modulo 10.	060C	On or Off	Off	Off	Off	✓	
Minimum Label Length	Set the minimum label length to be less than or equal to maximum label length.	0624	01 - 15	01	01	04	✓	✓
Maximum Label Length	This feature specifies the maximum allowable length of an MSI label. The length includes check and data characters. Maximum Label Length should be greater than or equal to Minimum Label Length.	0625	01 - 15	01	15	10	✓	✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Read Verification	Sets the number of times a label must be read before it is transmitted.	0626	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent by the decoder when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0627	Any single ASCII character (00 = Off)	'H'	'H'	'H'	✓	✓
Pharmacode 39 (Code 32)			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the Pharmacode 39 (Code 32) symbology.	0110	On or Off	Off	On	Off	✓	✓
Send Checksum	Instructs the terminal to include the checksum in the label transmission.	0112	On or Off	Off	Off	Off	✓	
Send Start/ Stop	Instructs terminals to prefix a Pharmacode 39 label with an “A” prior to transmission.	0113	On or Off	Off	On	Off	✓	
User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0127	Any single ASCII character (00 = Off)	'Y'	'Y'	'Y'	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
RSS-14			Enter 1 for On and 0 for Off.					
RSS-14 Enable	Enables/disables the RSS-14 sym-bology.	0 8 0 0	On or Off	Off	On	On	✓	✓
RSS-14 to UCC-EAN 128	Instructs the decoder to transmit the label data as one or more UCC-128 labels. The transmission will use the UCC-128 AIM identifier.	0 8 0 4	On or Off	Off	On	Off	✓	✓
	**If RSS-14, RSS-Expanded, RSS-Limited, or RSS-Composite symbologies are enabled for UCC-EAN 128, then that setting is also enabled for all other RSS symbologies.**							
NOTE: For the 2D Imager, RSS-Expanded User Code ID is used for RSS-14								
RSS Limited			Enter 1 for On and 0 for Off.					
RSS Limited Enable	Enables/disables the RSS Limited symbology.	0 8 0 8	On or Off	Off	On	On	✓	✓
RSS Limited to UCC-EAN 128	Instructs the decoder to transmit the label data as one or more UCC-128 labels. The transmission will use the UCC-128 AIM identifier.	0 8 0 C	On or Off	Off	On	Off	✓	✓
	**If RSS-14, RSS-Expanded, RSS-Limited, or RSS-Composite symbologies are enabled for UCC-EAN 128, then that setting is also enabled for all other RSS symbologies.**							
NOTE: For the 2D Imager, RSS-Expanded User Code ID is used for RSS-Limited								

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
RSS Expanded			Enter 1 for On and 0 for Off.					
RSS Expanded Enable	Enables/disables the RSS Expanded symbology.	0 8 1 0	On or Off	Off	On	On	✓	✓
RSS Expanded to UCC-EAN 128	Instructs the decoder to transmit the label data as one or more UCC-128 labels. The transmission will use the UCC-128 AIM identifier.	0 8 0 4	On or Off	Off	On	Off	✓	✓
RSS Expanded Minimum	Set the minimum bar code label length to be less than or equal to maximum label length.	0 8 2 4	1 - 74	1	74	1	✓	✓
RSS Expanded Maximum	This feature specifies the maximum allowable length of a label. The length includes check and data characters, if applicable. Maximum Label Length should be greater than or equal to Minimum Label Length.	0 8 2 5	1 - 74	1	74	74	✓	✓
RSS Expanded User Code ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0 8 2 7	Any single ASCII charac-ter (00 = Off)	'R'	'R'	'R'	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Standard 2 of 5			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the Standard 2 of 5 symbology.	0200	On or Off	Off	On	Off	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0201	On or Off	Off	On	Off	✓	
Enable Checksum	Requires the use of checksum characters to verify a bar code	0202	On or Off	Off	Off	Off	✓	
Send Checksum	Instructs the terminal to include the checksum in the label transmission.	0203	On or Off	Off	Off	Off	✓	
Use 2-bar Start/Stop	Allows the terminal to recognize labels that are printed using only two bars for start/stop characters.	0204	On or Off	Off	Off	Off	✓	✓
Minimum Label Length	Set the minimum label length to be less than or equal to maximum label length.	0220	01 - 50	01	01	06	✓	✓

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Maximum Label Length	This feature specifies the maximum allowable length of a Standard 2 of 5 label. The length includes check and data characters. Maximum Label Length should be greater than or equal to Minimum Label Length.	0221	01 - 50	01	50	10	✓	✓
Read Verification	Sets the number of times a label must be read before it is transmitted.	0222	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0223	Any single ASCII charac-ter (00 = Off)	'F'	'F'	'F'	✓	✓
Trioptic			**Enter 1 for On and 0 for Off.**					
Enable	Enables/disables the Trioptic sym-bology.	0108	On or Off	Off	On	Off	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0109	On or Off	Off	On	Off	✓	
Read Verification	Sets the number of times a label must be read before it is transmitted.	0124	01 - 04	01	02	01	✓	

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology	0125	Any single ASCII character (00 = Off)	'X'	'X'	'X'	✓	✓
Universal Product Code-A (UPC-A)			Enter 1 for On and 0 for Off.					
Enable	Enables/disables the UPC-A symbology.	0500	On or Off	Off	On	On	✓	✓
Enable Aggressive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0501	On or Off	Off	On	Off	✓	
Send Check Digit	Includes check digit in the label which is transmitted.	0502	On or Off	Off	On	Off	✓	✓
Send System Digit	Includes the system digit in the label transmission. For UPC-A, the system digit is always zero.	0503	On or Off	Off	On	On	✓	✓
Convert UPC-A to EAN-13	Instructs the decoder to expand UPC-A labels to their EAN-13 equivalents. Any EAN-13 parameters will then apply to the result.	0504	On or Off	Off	On	Off	✓	

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults			Scanner Type	
				Min	Max	Fac-tory	Laser/ Linear Imager	2D Imag er
Read Veri-fication	Sets the number of times a label must be read before it is transmit-ted.	0520	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0521	Any single ASCII charac-ter (00 = Off)	'A'	'A'	'A'	✓	✓
Universal Product Code-E (UPC-E)			**Enter 1 for On and 0 for Off.**					
Enable System Digit 0	Enables/disables UPC-E labels with a system digit of zero.	0508	On or Off	Off	On	On	✓	✓
Enable Aggres-sive Decoding	Enables more aggressive decoding algorithms to be used in order to scan hard to read labels.	0509	On or Off	Off	On	Off	✓	
Send Check Digit	Includes the check digit in the label which is transmitted.	050A	On or Off	Off	On	Off	✓	✓
Send Sys-tem Digit	This instructs the decoder to include the system digit in the label transmission. For UPC-E, the sys-tem digit is zero.	050B	On or Off	Off	On	Off	✓	✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Convert UPC-E to UPC-A	Instructs the decoder to expand UPC-E labels to their UPC-A equivalents. Any UPC-A parameters will then apply to the result.	050C	On or Off	Off	On	Off	✓	✓
Read Verification	Sets the number of times a label must be read before it is transmitted.	0522	01 - 04	01	02	01	✓	
User ID	Specifies the symbology identifier (if any) that is sent by the decoder when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0523	Any single ASCII character (00 = Off)	'E'	'E'	'E'	✓	✓
UPC/EAN Extensions			**Enter 1 for On and 0 for Off.**					
Enable 2-Digit Extensions	Requires a 2 digit extension (supplemental label) to be verified for a successful decode of a label.	051C	On or Off	Off	On	On	✓	✓
Enable 5-Digit Extensions	Requires a 5 digit extension (supplemental label) to be verified for a successful decode of a label.	051D	On or Off	Off	On	On	✓	✓
Enable Code 128 Extensions	Enables/disables Code 128 extensions.	051E	On or Off	Off	On	On		✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Require Extensions	Instructs the decoder to require any enabled UPC/EAN extensions (supplemental labels) to be with a label in order for a scan to be successful.	051F	On or Off	Off	Off	Off	✓	✓
Read Verification	Sets the number of times an extension (supplemental label) must be read before it is included in the transmission of the base UPC/EAN label.	0528	01 - 04	01	01	01	✓	

Table F-3. Programmable 2D Symbologies

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Aztec Code			Enter 1 for On and 0 for Off.					
Aztec Code Enable	Enables/disables the Aztec symbology.	0B18	On or Off	Off	On	On		✓
Enable Aztec Runes	Enables/disables Aztec runes, which are the smallest type of Aztec Code symbol with the ability to encode a very short message.	0B1A	On or Off	Off	On	Off		✓
Aztec Code Minimum	Set the minimum bar code label length to be less than or equal to maximum label length.	0B2C	1 - 3750	1	3750	1		✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Aztec Code Maximum	This feature specifies the maximum allowable length of a label. The length includes check and data characters, if applicable. Maximum Label Length should be greater than or equal to Minimum Label Length.	0B2D	1 - 3750	1	3750	3750		✓
Aztec Code User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0B2F	Any single ASCII character (00 = Off)	'd'	'd'	'd'		✓
DataMatrix			**Enter 1 for On and 0 for Off.**					
Datamatrix Enable	Enables/disables the Datamatrix symbology.	0B00	On or Off	Off	On	On		✓
Datamatrix Minimum	Set the minimum bar code label length to be less than or equal to maximum label length.	0B20	1 - 1500	1	1500	1		✓
Datamatrix Maximum	This feature specifies the maximum allowable length of a label. The length includes check and data characters, if applicable. Maximum Label Length should be greater than or equal to Minimum Label Length.	0B21	1 - 1500	1	1500	1500		✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Datamatrix User Code ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0B23	Any single ASCII character (00 = Off)	'V'	'V'	'V'		✓
Composite			Enter 1 for On and 0 for Off.					
Composite Enable	Enables/disables the Composite symbology.	0A10	On or Off	Off	On	Off		✓
Composite to UCC/EAN-128	Instructs the decoder to transmit the label data as one or more UCC-128 labels. The transmission will use the UCC-128 AIM identifier.	0A14	On or Off	Off	Off	Off		✓
Composite Minimum	Set the minimum bar code label length to be less than or equal to maximum label length.	0A28	1 - 2435	1	2435	1		✓
Composite Maximum	This feature specifies the maximum allowable length of a label. The length includes check and data characters, if applicable. Maximum Label Length should be greater than or equal to Minimum Label Length.	0A29	1 - 2435	1	2435	2435		✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
Composite User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0A2B	Any single ASCII character (00 = Off)	'b'	'b'	'b'		
NOTE: For the 2D Imager, RSS-Expanded User Code ID is used for Composite								
Maxicode			Enter 1 for On and 0 for Off.					
Maxicode Enable	Enables/disables the Maxicode symbology.	0B08	On or Off	Off	On	On		✓
Minimum Label Length	Set the minimum bar code label length to be less than or equal to maximum label length.	0B24	1 - 138	1	138	1		✓
Maxicode Maximum	This feature specifies the maximum allowable length of a label. The length includes check and data characters, if applicable. Maximum Label Length should be greater than or equal to Minimum Label Length.	0B25	1 - 138	1	138	138		✓
Maxicode User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0B27	Any single ASCII character (00 = Off)	'W'	'W'	'W'		✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
OCR	Also see "OCR Configuration" on page F-37		**Enter 1 for On and 0 for Off.**					
OCR Font	Selects which OCR font (if any) the decoder will be allowed to read with an imager	0C22	0 (None), 1 (OCR-A), 2 (OCR-B), 3 (U.S. Currency), 4 (MICR E 13 B)	0	0	0		✓
OCR Enable Mod 36 Check Digit	Enables use of an OCR Mod 36 check digit in a template.	0C02	On or Off	Off	On	Off		✓
OCR Check Digit Mod 36	Specifies check digit type: 0 Mod 10, 1 Mod 32	0C03	0 or 1	Off	Off	Off		✓
OCR User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0C21	Any single ASCII character (00 = Off)	'e'	'e'	'e'		✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
PDF 417			Enter 1 for On and 0 for Off.					
PDF-417 Enable	Enables/disables the PDF 417 symbology.	0A00	On or Off	Off	On	On		✓
PDF-417 Minimum	Set the minimum bar code label length to be less than or equal to maximum label length.	0A20	1 - 2710	1	2710	1		✓
PDF-417 Maximum	This feature specifies the maximum allowable length of a label. The length includes check and data characters, if applicable. Maximum Label Length should be greater than or equal to Minimum Label Length.	0A21	1 - 2710	1	2710	2710		✓
PDF-417 User Code ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0A23	Any single ASCII character (00 = Off)	'S'	'S'	'S'		✓
MicroPDF 417			Enter 1 for On and 0 for Off.					
MicroPDF-417 Enable	Enables/disables the MicroPDF 417 symbology.	0A08	On or Off	Off	On	Off		✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
MicroPDF-417 Minimum	Set the minimum bar code label length to be less than or equal to maximum label length.	0A24	1 - 366	1	366	1		✓
MicroPDF-417 Maximum	This feature specifies the maximum allowable length of a label. The length includes check and data characters, if applicable. Maximum Label Length should be greater than or equal to Minimum Label Length.	0A25	1 - 366	1	366	366		✓
MicroPDF-417 User Code ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0A27	Any single ASCII character (00 = Off)	'a'	'a'	'a'		✓
QR Code			**Enter 1 for On and 0 for Off.**					
QR Code Enable	Enables/disables QR Code symbology.	0B10	On or Off	Off	On	Off		✓
QR Code Minimum	Set the minimum bar code label length to be less than or equal to maximum label length.	0B28	1 - 3500	1	3500	1		✓

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults			Scanner Type	
				Min	Max	Factory	Laser/ Linear Imager	2D Imager
QR Code Maximum	This feature specifies the maximum allowable length of a label. The length includes check and data characters, if applicable. Maximum Label Length should be greater than or equal to Minimum Label Length.	0B29	1 - 3500	1	3500	3500		✓
QR Code User ID	Specifies the symbology identifier (if any) that is sent when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) is used to indicate that an identifier is not to be sent for the symbology.	0B2B	Any single ASCII character (00 = Off)	'c'	'c'	'c'		✓

Table F-4. Imaging Controls

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults		
				Min	Max	Factory
Imaging Controls			Enter 1 for On and 0 for Off.			
Imager Illu-minate Enable	Instructs the PDT to illuminate the scanning area (independent of any targeting beam) when using an imager.	0008	On or Off	On	On	On
Imager Aim Mode	Toggles between two different operating modes for the targeting beam: Concurrent (Off): The targeting beam is turned on at the same time as an enabled illumination beam. Interlaced (On): Toggles the aimer and illu-mination beam.	0009	On or Off	On	On	On
Imager Aim Enable	Instructs the PDT to make use of a target-ing beam when an imager is installed	000A	On or Off	On	On	On
Image LED Enable	Instructs the imager to use LED illumination when taking images.	0C08	On or Off	Off	Off	Off
Image LR Fil-ter Enable	Instructs the imager to use a filter that improves the quality of images taken at longer distances.	0C09	On or Off	Off	Off	Off
Imaging Width	Specifies the width of images taken with an imager	0C23	1 to 640 (in pix-els)	640	640	640
Imaging Height	Specifies the height of images taken with an imager.	0C24	1 to 480 (in pix-els)	480	480	480

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults		
				Min	Max	Factory
Imaging Rotation	Specifies how much the imager will rotate images it takes.	0C25	0 to 3 (0 to 270 degrees in 90 degree incre-ments)	0	0	0
Imaging Scale	Specifies how much the imager is to scale images it takes. It is the percentage of the original image that is used to create the final image. Scales the x,y dimensions of the image.	0C26	0 = 100% 1 = 50% (1/4 size) 2 = 33% (1/9 size) 3 = 25% (1/16 size)	0	0	0
Imaging For-mat	Specifies the storage format an imager will use when taking images. 0 (TIFF monochrome) 1 (TIFF 8 bit grayscale) 2 (JPEG 8 bit grayscale) 3 (BMP monochrome) 4 (BMP 8 bit grayscale)	0C27	0 to 4	2	2	2
Imaging Brightness	Specifies the brightness level an imager will use when taking images	0C28	0 to 99 (low to high)	50	50	50
Imaging Edge Sharp-ness	Specifies how much (if at all) an imager will attempt to sharpen edges in images it takes.	0C29	0 (off), 1 to 99 (dull to sharp)	0	0	0

Code Parameter/ Description		I. D. #	Accep-table Input	Defaults		
				Min	Max	Factory
JPEG Imaging Quality	Specifies the level of quality an imager will use when taking images. Lower levels result in images which have greater levels of lost detail, but have smaller storage requirements and transmit faster.	0C2A	0 to 99 (lower to higher)	50	99	99
Imaging Gamma Cor-rection	Specifies the amount of correction the imager applies when taking images. Gamma correction attempts to match the way the imager responds to light levels to that of the human eye.	0C2B	0 (none), 1 to 99 (less to more)	0	0	0

Table F-5. Other Controls

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults		
				Min	Max	Factory
Other Controls			Enter 1 for On and 0 for Off.			
Enable Label Programming	Enables/disables the ability to perform label programming.	FF00	On or Off	On	On	On
Beeper Volume	Adjusts the beeper volume.	FF20	00 = Off 00 - 09 (01 = Lowest; 07 = Highest; 08 = Higher; 09 = Lower)	07	07	07
Long Range Trigger Mode	Selects the Long Range Trigger mode.	0000	On = Release Scan Off = Spot Timeout	Off	Off	Off

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults		
				Min	Max	Factory
Spotting Beam Enable	Enables/disables the Spotting Beam	0001	On or Off	On	On	On
Spotting Beam Timeout	Sets the duration of the spotting beam before it automatically turns off.	0023	00 = 0.25 sec. 01 = 0.5 sec. 02 = 1.0 sec. 03 = 1.5 sec. 04 = 2.0 sec.	01	01	01
Release Scan Timeout	Sets the duration of the scan before it turns off.	0024	1-10	02	02	02
Number of Good-Read Beeps	Determines the number of beeps for a good read indicator.	0020	01 - 04	01	01	01
Good-Read Beep Tone	Adjusts the pitch of the beeper frequency.	0021	00 - 07 (00 = Lowest; 07 = Highest)	00	00	00
Good-Read Beep Duration	Determines the duration of a good read beep.	0022	00 = 0.07 sec. 01 = 0.13 sec. 02 = 0.18 sec. 03 = 0.36 sec.	00	00	00
Send Symbology Identifiers	Specifies the symbology identifier (if any) that is sent by the decoder when parameter Send Code ID (Index 0025) is set to 3. ASCII code zero (null) used to indicate an identifier not to be sent for the symbology.	0025	00 = Off 01 = DLM IDs* 02 = AIM IDs 03 = User IDs	00	01	00

Code Parameter/ Description		I. D. #	Acceptable Input	Defaults		
				Min	Max	Factory
Label Prefix	Indicates a label prefix.	0026	Any single ASCII character (00 = Off)	None	None	None
Label Suffix	Indicates a label suffix.	0027	Any single ASCII character (00 = Off)	CR	CR	CR

Table F-6. Datalogic Mobile Label IDs

Datalogic Mobile Label IDs		
UPC-A = A	Code 128 = K	Trioptic = X
UPC-E = E	I 2 of 5 = B	Pharmacode 39 = Y
EAN-8 = G	S 2 of 5 = F	RSS-14 = P
EAN 13 = M	M 2 of 5 = D	RSS Limited = Q
Code 39 = C	Code 93 = L	RSS Expanded = R
Codabar = I	MSI = H	

OCR Configuration

OCR configuration is performed with a combination of PDT parameters and registry settings. For purposes of configuration, OCR is considered one symbology. Only one font can be active at a time.

OCR Data Output

OCR data is outputted to the system as though it were bar code data. Characters of the OCR fonts are outputted as printed. Only A-Z, 0-9 are supported.

The maximum number of OCR rows is three. The maximum number of characters per row is 16. This means that the overall maximum number of OCR characters is 48 characters.

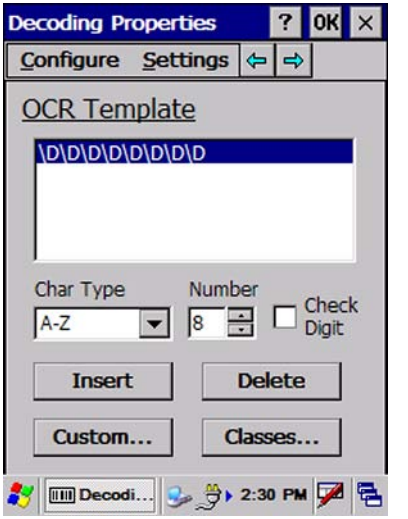
Check digits are not outputted with OCR data. See "OCR Check Characters" starting on page F-42 for more information.

OCR Templates

You can specify a null-terminated string that defines the length and content of OCR strings that can be read. This string can be used to specify a single template or multiple templates that are concatenated together. You can also stipulate two template variables that specify a configurable class of characters.

By default, a single template is defined that allows for any 8-digit OCR string to be read.

The list box displays templates, with each list item displayed as a one-line string.



- Use the **Char Type** spin box to select allowable characters.
- Use the **Number** to set length.
- Select/deselect the **Check Digit** checkbox.
- Tap **Insert** to add a new list item that conforms to the three controls above this button.
- Tap **Delete** to remove the selected item from the list box.
- Tap **Custom** to add a template that does not match a standard. See Table F-7 on page F-39.

Printable template characters (0x20 – 0x7E) are represented by themselves, and template control characters are printed according to template characters shown in Table F-7 on page F-39.

Template separator characters are not printed; templates are displayed as separate list items.

Building a Single Template

A template allows you to specify the format of an OCR string that can be read. The imager will only decode OCR strings that match a specified template. This template can be made up of any combination of characters that are specified in Table F-7. The “Character” column shows what is entered into Custom to make a custom template. The one exception is the check digit character (0x03). See "OCR Check Characters" starting on page F-42 for more information about OCR check digit.

Table F-7. Template Characters

Character	Hex	Description
\A or \a	0x01	Represents any letter or number (A-Z, 0-9)
\C or \c	0x03	Represents a check digit
\D or \d	0x04	Represents any digit (0-9)
\E or \e	0x05	Represents any font character (A-Z, 0-9)
\G or \g	0x06	Custom character class 1 variable
CTL-H	0x07	Custom character class 2 variable
\R or \r	0x0A	Represents start of new template
\L or \l	0x0C	Represents any upper case character (A-Z)
\N or \n	0x0D	Represents the start of a new row
SP to '7E'	0x20 to 0x7E	These characters represent themselves

Template examples can be found in Table F-8. Template characters are shown in hexadecimal format with spaces used as character delineators. The sample column shows an example of an OCR string that matches the template format.

Table F-8. Single Template Examples

Template (HEX)	Sample	Description
04 04 04 04 04 04 04 04	24351332	A string of any 8 digits.
04 04 04 41 42 43 04 04 04	552ABC523	A string starting with any 3 digits, followed by "ABC", ending with any 3 digits
05 05 05 20 05 04 04 04	AA2 A142	A string starting with any 3 digits, followed by a space, followed by any character, and ending with any 3 digits.
04 04 04 04 04 04 04 04 03	121212122	A string of any 8 digits with check digit.

Multiple Rows

A single template can specify up to three rows. The \N character is used to delineate the start of a new row. Table F-9 gives some examples of multiple row templates.

Table F-9. Multiple Row Template Examples

Template (HEX)	Sample	Description
04 04 04 04 04 04 04 04 0D 0C 0C 0C 0C 0C 0C 0C 0C	55223311 ABCDEFGH	A string with one row of 8 digits and one row of 8 upper case letters
41 05 05 05 05 0D 42 05 04 0D 43 04 04 04 04	A1B 4 B23 C2345	A string with one row starting with an “A” and ending with any 4 characters, one row starting with a “B” and ending with 2 digits, and one row starting with a “C” and ending with 4 digits.
41 0D 42 0D 43	A B C	A string with three rows, the first being “A”, the second being “B”, and the last being “C”.

Multiple Templates

Multiple templates can be created by concatenating templates together. The \R character is used to concatenate templates. When this character is present it signifies that the next characters specify a new template. Logically the \R character is an OR statement meaning that if an OCR string matches any of the specified templates it will be read. Any number of templates can be concatenated as long as the total number of template characters is no greater than 128. Table F-10 shows some examples of multiple templates.

Table F-10. Multiple Template Examples

Template (HEX)	Sample	Description
04 04 04 04 0C 0C 04 04 0A 04 04 04 04 04 04 04	24351332 or 2435CD32	A string starting with any 4 digits, followed by any 2 upper case letters, ending with 2 digits. OR A string of any 8 digits.
05 05 0A 05 05 05 05 0A 05 05 05 05 05 05	BC or A24 or H34232	A string of any 2 characters. OR A string of any 4 characters. OR A string of any 6 characters.
04 04 04 04 03 0D 04 04 04 04 03 0D 04 04 04 04 03 0A 05 05 05 05 0D 04 04 04 04	12331 43355 23145 or ESIC 5345	A string with 3 rows with each row having any 4 digits and a check character. OR Two strings, the first having any 4 characters, and the second having any 4 digits.

Custom Character Classes

A custom character class (CCC) is a string of up to 50 printable characters that is associated with a template variable. When a template variable is specified in a template only characters in the associated CCC string will be allowed in the specified character position. The variable \G is associated with custom character class 1 (CCC1) and the variable \H is associated with custom character class 2 (CCC2). Table F-11 gives some examples of how CCCs are used. The CCC strings must specify at least one character for the associated variable to be used in a template.

Table F-11. Custom Character Class Examples

Template (HEX)	CCC1	CCC2	Sample	Description
06 06 06 06 06 06	AB	N/A	ABAABB	A string of 6 characters where each character is either “A” or “B”.
06 06 06 07 07 07	AB	CDE12	BAALED	A string starting with 3 characters that can be any combination of “A” and “B”, and ending with 3 characters that can be any combination of “C”, “B”, “E”, “1”, or “2”.
06 06 06 07 07 07	AB	NULL	N/A	Error, CCC2 not defined.
07 4D 06 04 05	BDA1	12	2MDLC	A string starting with “1” or “2”, followed by “M”, followed by either “B”, “D”, “A”, or “1”, followed by any character.

OCR Check Characters

OCR can be configured to use either a Modulo 10 or Modulo 36 check digits using the PDT parameters. A check digit is used to verify the contents of a bar code by calculating the total of the data. By default, OCR is configured to use Modulo 10 check digits. This setting is global to all check digits. The following must be true for the placement of a check digit to be considered valid:

- The check digit must be put at the end of a row.
- There can be no more than 1 check character in a row.
- Rows with check digits can only have the characters 0-9 and A-Z.

Modulo 10 Check Digit

Modulo 10 allows you to set a check digit for the numbers 0 through 9, with values corresponding to the numbers.

The general formula for calculating a Modulo 10 check digit is as follows:

$(d_n + \ldots + d_3 + d_2 + d_1 + d_0)$ modulo 10 = 0

Modulo 10 Example

1212121212

(1 + 2 + 1 + 2 + 1 + 2 + 1 + 2 + 1 + 2 + x) modulo 10 = 0

(15 + x) modulo 10 = 0
(15 + 5) modulo 10 = 0

x = 5, so the check digit would be 5.
The final string including the check digit would be 12121212125.

Modulo 36

Modulo 36 allows you to set a check digit for the characters 0 - 9 and A -Z. The numbers correspond to the values just as in Modulo 10 and the values for alphabetic characters start at 10 for A and end with Z at 35, as shown in Table F-12.

Table F-12. Modulo 36 character values

A	B	C	D	E	F	G	H	I
10	11	12	13	14	15	16	17	18
J	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**
19	20	21	22	23	24	25	26	27
S	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	
28	29	30	31	32	33	34	35	

The general formula for calculating a Modulo 36 check digit is as follows:

$(d_n + \ldots + d_3 + d_2 + d_1 + d_0)$ modulo 36 = 0

Modulo 36 Example

ABCD123

A B C D 1 2 3

(10 + 11 + 12 + 13 + 1 + 2 + 3 + x) modulo 36 = 0

(52 + x) modulo 36 = 0
(52 + 20) modulo 36 = 0

x = 20, so using the value from Table F-12, the check digit would be K. The final string including the check digit would be ABCD123K.

Table F-13. ASCII/Hex Conversion Table

ASCII	Hex	ASCII	Hex	ASCII	Hex	ASCII	Hex
NUL	00	SP	20	@	40		60
SOH	01	!	21	A	41	a	61
STX	02	“	22	B	42	b	62
ETX	03	#	23	C	43	c	63
EOT	04	$	24	D	44	d	64
ENQ	05	%	25	E	45	e	65
ACK	06	&	26	F	46	f	66
BEL	07	&	26	G	47	g	67
BS	08	(	28	H	48	h	68
HT	09	)	29	I	49	i	69
LF	0A	*	2A	J	4A	j	6A
VT	0B	+	2B	K	4B	k	6B
FF	0C	,	2C	L	4C	l	6C
CR	0D	-	2D	M	4D	m	6D
SO	0E	.	2E	N	4E	n	6E
SI	0F	/	2F	O	4F	o	6F
DLE	10	0	30	P	50	p	70
DC1	11	1	31	Q	51	q	71
DC2	12	2	32	R	52	r	72
DC3	13	3	33	S	53	s	73
DC4	14	4	34	T	54	t	74
NAK	15	5	35	U	55	u	75
SYN	16	6	36	V	56	v	76

ASCII	Hex	ASCII	Hex	ASCII	Hex	ASCII	Hex
ETB	17	7	37	W	57	w	77
CAN	18	8	38	X	58	x	78
EM	19	9	39	Y	59	y	79
SUB	1A	:	3A	Z	5A	z	7A
ESC	1B	;	3B	[	5B	{	7B
FS	1C	<	3C	\	5C	|	7C
GS	1D	=	3D	]	5D	}	7D
RS	1E	>	3E	^	5E	~	7E
US	1F	?	3F	_	5F	DEL	7F

NOTES

Appendix G
Programming Bar Codes

Overview

This appendix provides bar codes for common setup parameters for programming the Falcon 44xx. Factory default settings are underlined.

To make settings that are not provided in the chapter, you can design custom bar codes or use the Falcon Management Utility (FMU) to program the Falcon. Refer to Configuring the Falcon, on page 2-1.

1D Symbologies

Symbologies and bar code setup parameters included in this appendix are:

2D Symbologies

Depending on which Falcon model you have, some programming parameters may not be available on your unit. Refer to Table F-2 on page F-3 and Table F-3 on page F-24 for specific details on which parameters are applicable.

Predefined Defaults

Minimum *//FF39FF3F*

Registry *//FF3CFF3F*

Maximum *//FF3AFF3F*

Restore From Registry *//FF3D*

Factory *//FF3BFF3F*

Save To Registry *//FF3F*

Codabar

ENABLE

On *//030001FF3E*

Off *//030000FF3E*

ENABLE AGGRESSIVE DECODING

On *//030011FF3E*

Off *//030010FF3E*

ENABLE CHECKSUM

On *//030021FF3E*

Off *//030020FF3E*

SEND CHECKSUM

On *//030031FF3E*

Off *//030030FF3E*

CONCATENATE

On

Off

SEND START/STOP

On

Off

CONVERT TO CLSI

On

Off

ALLOW WIDE INTERCHARACTER GAPS

On

Off

MINIMUM LENGTH

1

30

4

40

10

50

20

MAXIMUM LENGTH

1 *//032101FF3E*

30 *//032130FF3E*

10 *//032110FF3E*

40 *//032140FF3E*

20 *//032120FF3E*

50 *//032150FF3E*

READ VERIFICATION

1 *//032201FF3E*

3 *//032203FF3E*

2 *//032202FF3E*

4 *//032204FF3E*

Code 39

ENABLE

On *//010001FF3E*

Off *//010000FF3E*

ENABLE AGGRESSIVE DECODING

On *//010111FF3E*

Off *//010110FF3E*

ENABLE CHECKSUM

On

Off

SEND CHECKSUM

On

Off

FULL ASCII MODE

On

Off

CONCATENATE

On

Off

MINIMUM LENGTH

1

30

10

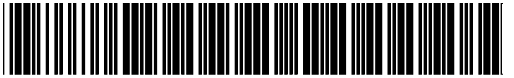
40

20

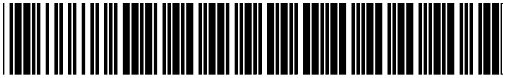
50

MAXIMUM LENGTH

1


30


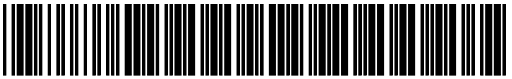
10


40


20


50


READ VERIFICATION

1


3


2

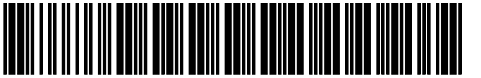

4


Code 93

ENABLE

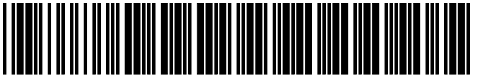
On

Off



ENABLE AGGRESSIVE DECODING

On



Off

MINIMUM LENGTH

2

30

10

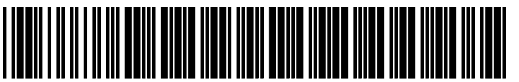
40

20

50

MAXIMUM LENGTH

2



30

10

40

20 

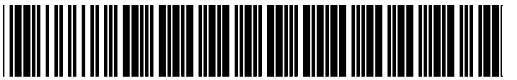
50 

READ VERIFICATION

1 

3 

2 

4 

Code 128

ENABLE

On

Off

ENABLE AGGRESSIVE DECODING

On

Off

ENABLE UCC/EAN-128

On

Off

ISBT CONCATENATION

On

Off

MINIMUM LENGTH

1

30

2

40

10

50

20

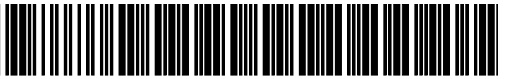
MAXIMUM LENGTH

1

30

10

40

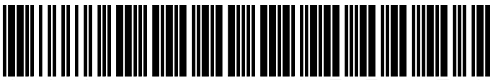


20

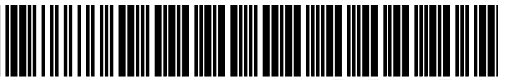
50

READ VERIFICATION

1



3



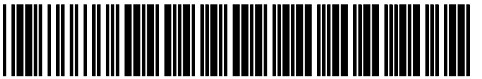
2

4

EAN-13

ENABLE

On

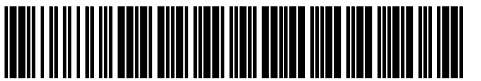


Off

ENABLE AGGRESSIVE DECODING

On

Off



SEND CHECK DIGIT

On

Off

SEND SYSTEM DIGIT

On

Off

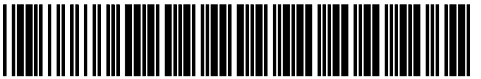
CONVERT EAN-13 TO ISBN

On

Off

CONVERT EAN-13 TO ISSN

On



Off

ENABLE EAN 4-DIGIT PRICE/WEIGHT CHECK DIGIT

On

Off

ENABLE EAN 5-DIGIT PRICE/WEIGHT CHECK DIGIT

On

Off

READ VERIFICATION

1

3

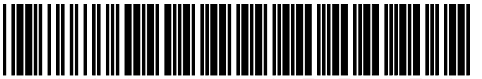
2

4

EAN-8

ENABLE

On

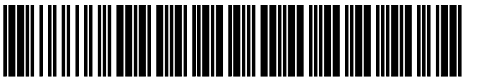


Off

ENABLE AGGRESSIVE DECODING

On

Off



SEND CHECK DIGIT

On

Off

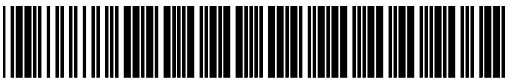
CONVERT EAN-8 TO EAN-13

On

Off

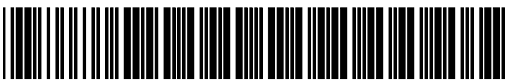
READ VERIFICATION

1



3

2



4

Interleaved 2 of 5

ENABLE

On

Off

ENABLE AGGRESSIVE DECODING

On

Off

ENABLE CHECKSUM

On

Off

SEND CHECKSUM

On

Off

ENABLE CASE CODE

On

Off

MINIMUM LENGTH

2

30

6

40

10 *//02281 0FF3E*

50 *//02285 0FF3E*

20 *//02282 0FF3E*

MAXIMUM LENGTH

2 *//02290 2FF3E*

30 *//02293 0FF3E*

10 *//02291 0FF3E*

40 *//02294 0FF3E*

20 *//02292 0FF3E*

50 *//02295 0FF3E*

READ VERIFICATION

1 *//022A0 1FF3E*

3 *//022A0 3FF3E*

2 *//022A0 2FF3E*

4 *//022A0 4FF3E*

Matrix 2 of 5

ENABLE

On

Off

ENABLE AGGRESSIVE DECODING

On

Off

ENABLE CHECKSUM

On

Off

SEND CHECKSUM

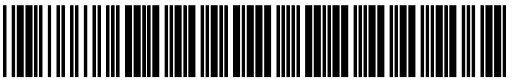
On

Off

MINIMUM LENGTH

1

30



6

40

10

50

20

MAXIMUM LENGTH

1 

30 

10 

40 

20 

50 

READ VERIFICATION

1 

3 

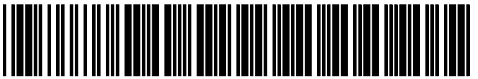
2 

4 

MSI

ENABLE

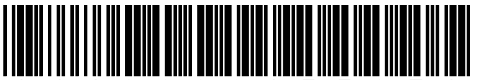
On



Off

ENABLE AGGRESSIVE DECODING

On



Off

REQUIRE 2 CHECK DIGITS

On

Off

SEND CHECK DIGITS

On

Off

2ND CHECK DIGIT MOD 11

On

Off

MINIMUM LENGTH

1

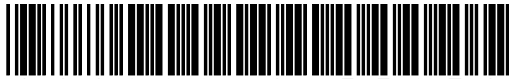
10

4

12

7

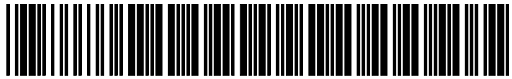
15



MAXIMUM LENGTH

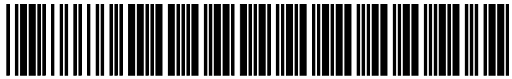
1

10



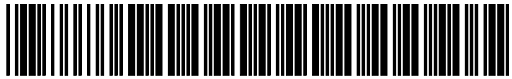
4

12



7

15



READ VERIFICATION

1

3

2

4

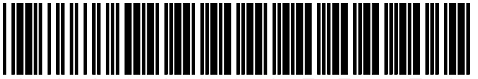
Pharmacode 39 (Code 32)

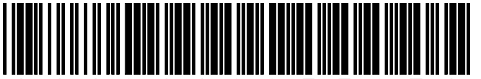
ENABLE

On 

Off 

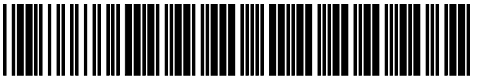
SEND CHECKSUM

On 

Off 

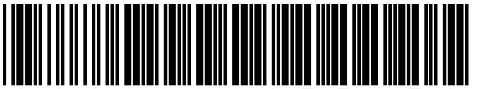
SEND START/STOP

On 

Off 

RSS-14

ENABLE

On 

Off 

ENABLE RSS-14 to UCC-128

On 

Off 

RSS Limited

ENABLE

On

Off

ENABLE RSS Limited to UCC-128

On

Off

RSS Expanded

ENABLE

On

Off

ENABLE RSS Expanded to UCC-128

On

Off

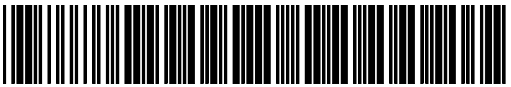
MINIMUM LENGTH

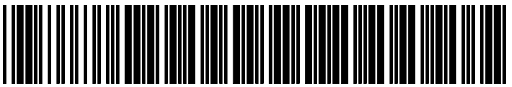
1

45

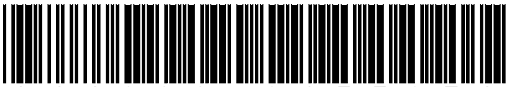
15

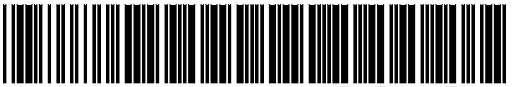
60

30 

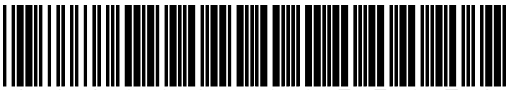
74 

MAXIMUM LENGTH

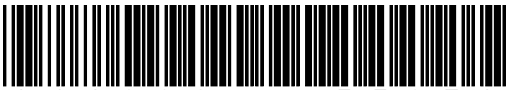
1 

45 

15 

60 

30 

74 

Standard 2 of 5

ENABLE

On

Off

ENABLE AGGRESSIVE DECODING

On

Off

ENABLE CHECKSUM

On

Off

SEND CHECKSUM

On

Off

USE 2-BAR START/STOP

On

Off

MINIMUM LENGTH

1

30

6

40

10
//022010FF3E

50
//022050FF3E

20
//022020FF3E

MAXIMUM LENGTH

1
//022101FF3E

30
//022130FF3E

10
//022110FF3E

40
//022140FF3E

20
//022120FF3E

50
//022150FF3E

READ VERIFICATION

1
//022201FF3E

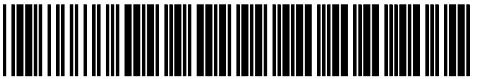
3
//022203FF3E

2
//022202FF3E

4
//022204FF3E

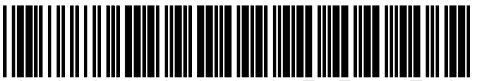
Trioptic

ENABLE

On 
//01081FF3E

Off 
//01080FF3E

ENABLE AGGRESSIVE DECODING

On 
//01091FF3E

Off 
//01090FF3E

READ VERIFICATION

1 
//012401FF3E

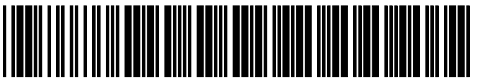
3 
//012403FF3E

2 
//012402FF3E

4 
//012404FF3E

UPC-A

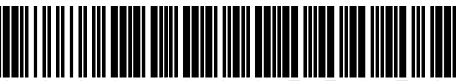
ENABLE

On 
//05001FF3E

Off 
//05000FF3E

ENABLE AGGRESSIVE DECODING

On 
//05011FF3E

Off 
//05010FF3E

SEND CHECK DIGIT

On

Off

SEND SYSTEM DIGIT

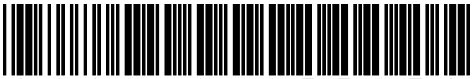
On

Off

CONVERT UPC-A TO EAN-13

On

Off

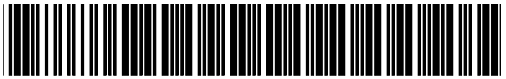


READ VERIFICATION

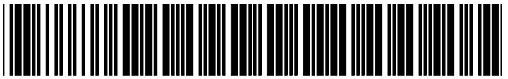
1

3

2



4



UPC-E

ENABLE SYSTEM DIGIT 0

On

Off

ENABLE AGGRESSIVE DECODING

On

Off

SEND CHECK DIGIT

On

Off

SEND SYSTEM DIGIT

On

Off

CONVERT UPC-E TO UPC-A

On

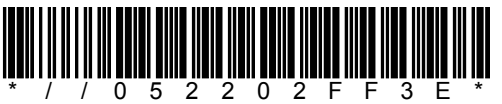
Off

READ VERIFICATION

1

3

2



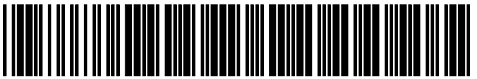
4

UPC/EAN Extensions

ENABLE 2-DIGIT EXTENSIONS

On

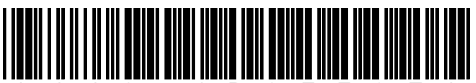
Off



ENABLE 5-DIGIT EXTENSIONS

On

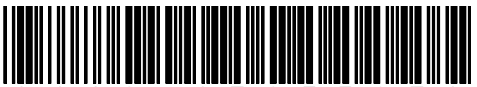
Off



ENABLE CODE 128 EXTENSIONS

On

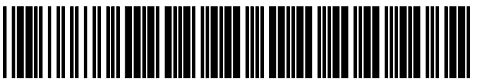
Off



REQUIRE EXTENSIONS

On

Off



READ VERIFICATION

1

2

3

4

2D Symbologies

Aztec Code

ENABLE

On

Off

ENABLE AZTEC CODE RUNES

On

Off

MINIMUM LENGTH

1

750

1500

2250

3000

3750

MAXIMUM LENGTH

1

750

1500

2250

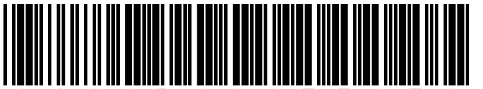
3000

3750

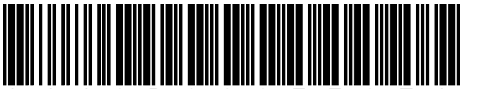
DataMatrix

ENABLE

On



Off



MINIMUM LENGTH

1

300

600

900

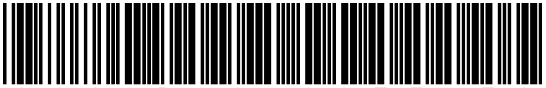
1200

1500

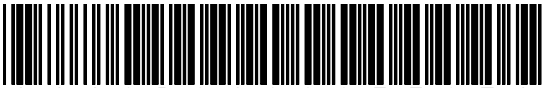
MAXIMUM LENGTH

1

300



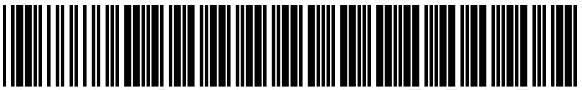
600



900

1200

1500



Composite

ENABLE

On

//0A1011FF3E

Off

//0A1000FF3E

MINIMUM LENGTH

1

//0A2801FF3E

500

//0A2850 0FF3E

1000

//0A28100 0FF3E

1500

//0A28150 0FF3E

2000

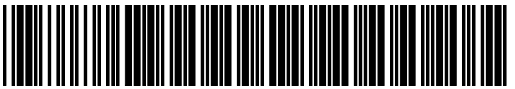
//0A28200 0FF3E

2435

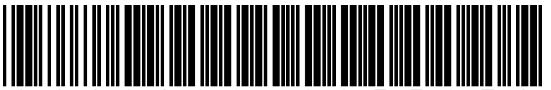
//0A28243 5FF3E

MAXIMUM LENGTH

1



500



1000

1500

2000

2435

Maxicode

ENABLE

On

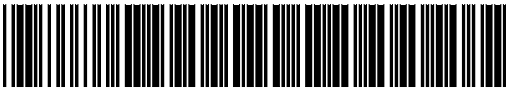
Off

MINIMUM LENGTH

1

25

50



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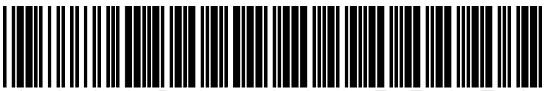


MAXIMUM LENGTH

1

25

50

75

100

138

OCR

ENABLE

On

Off

OCR FONT

OCR-A

OCR-B

MICR

US Currency

ENABLE OCR CHECK DIGIT

On

Off

ENABLE MOD 36 CHECK DIGIT

On

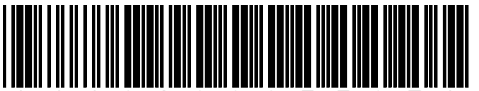
Off

PDF-417

ENABLE

On

Off



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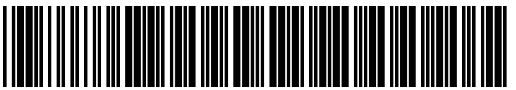

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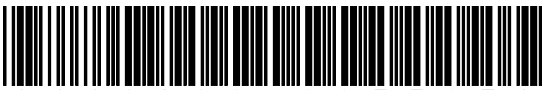

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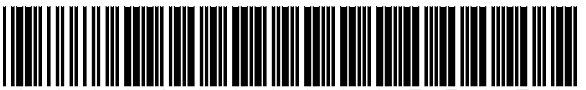

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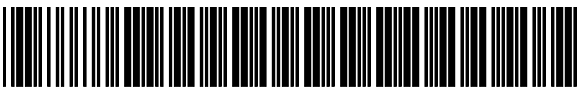

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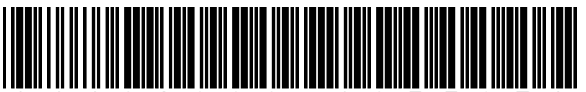

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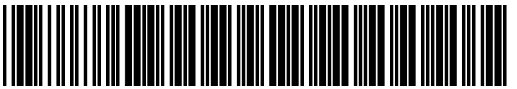

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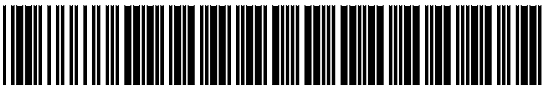

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1500

2000

2710

MicroPDF-417

ENABLE

On

Off

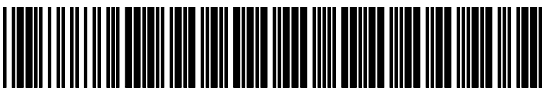
MINIMUM LENGTH

1

70

150

230



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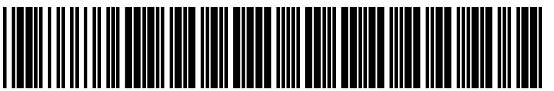

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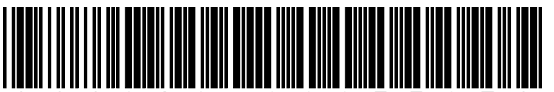


MAXIMUM LENGTH

1

70

150

230

300

366

QR Code

ENABLE

On

Off

MINIMUM LENGTH

1

700

1400

2100

2800

3500

MAXIMUM LENGTH

1

700

1400

2100

2800

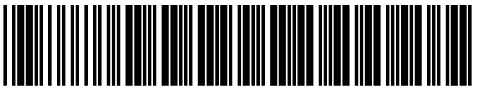
3500

Imager Labels

ILLUMINATION ENABLE

On

Off



AIM MODE

On

Off

AIM ENABLE

On

Off

LED ENABLE

On

Off

Other Controls

BEEPER VOLUME

Off

Lowest

Medium

Highest

Higher (Increases the current value one increment higher)

Lower (Decreases the current value one increment lower)

NUMBER OF GOOD-READ BEEPS

1

2

3

4

GOOD-READ BEEP TONE

Lowest

Medium

Highest

GOOD-READ BEEP DURATION (IN SECONDS)

0.07

0.13

0.18

0.36

Long Range Trigger Mode

Spot Timeout

Release Scan

Spotting Beam Enable

On

Off

Spotting Beam Timeout

0.25

0.5

1.0

1.5

2.0

Release Scan Timeout (IN SECONDS)

1

2

3

5

10

SEND SYMBOLOGY IDENTIFIERS

Off

DLM IDs

AIM IDs

User IDs

//0025 03FF3E

LABEL PREFIX

(CR)

//0026$MFF3E

(TAB)

//0026$IFF3E

None

//0026%UFF3E

LABEL SUFFIX

(CR)

//0027$MFF3E

(TAB)

//0027$IFF3E

None

//0027%UFF3E

Appendix H
Glossary

Many definitions for this Glossary were taken directly from the Microsoft Developer's Network website at http://msdn.microsoft.com/library/default.asp.

1D bar code	A traditional linear bar code. The code itself contains no information about the item to which it is assigned but represents a string of identifying numbers or letters.
2D bar code	Two-dimensional (2D) bar codes permit the encoding of information about an item in addition to an identifying code. Two axes, or directions, are used for recording and reading the codes and the bar size is reduced, increasing the space available for data.
4-way rocker key	Refer to navigation key.
active notification	The state of a user notification from the time the user is notified until the user handles the event.
active window	The window in which a user is currently working or directing input. An active window is typically on top of the Z order and is distinguished by the color of its title bar.
ActiveSync	Microsoft Windows Communication application that synchronizes a Windows CE device with a Microsoft Windows-based host PC. ActiveSync can use RS-232, IrDA, USB, and Wireless networks.
AP	Access Point used for RF applications.
ASCII	American Standard Code for Information Interchange; a code for information exchange between computers made by different companies; a string of 7 binary digits represents each character; used in most microcomputers. Any member of the standard code for representing characters by binary numbers. Refer to Table F-13 on page F-44.
AutoCAB	The AutoCAB program allows the Falcon to automatically reinstall selected applications when the terminal is cold booted. When the Falcon is rebooted, the AutoCAB program runs automatically and determines if it is a warm or cold boot.
AutoCE	AutoCE allows the user to create a list of applications to run when the Falcon is rebooted. Each application may be designated to run only on a cold boot, or on both warm and cold boots. The applications run sequentially, allowing interdependencies to be handled.
Batch units	Batch Falcon units are synchronized and updated using Microsoft ActiveSync software and a dock for communication with the host PC.

calibration	You may need to calibrate the touch screen. One way to know that the touch screen needs to be calibrated is that you will notice that when you attempt to select one item with the stylus, another item is erroneously selected.
checksum	A number used to verify the contents of a data file. This number is generated by calculating the contents of the data. If the calculated checksum is different from the expected checksum, the data has errors in it.
CLSI	CLSI, Inc. is the developer of the "LIBS 100 scanning and decoding system". The "Convert to CLSI" parameter refers to formatting a Codabar bar code label in the manner defined by CLSI, Inc.
Concatenate	To arrange (strings of characters) into a connected list.
control	A standardized part of the window that can be manipulated by the user to perform an action or display information. The most common controls are buttons that allow the user to select options and scroll bars that allow the user to move through a document or position text in a window.
context sensitive help	Tap "**?**" to open a help dialog about the specific windows application you are using. Context sensitive help can tell where you are in a program and can provide assistance with the specific problems you might be having.
control panel	Control Panels are several different applets that allow you to configure the Falcon to meet your specific requires. There are control panels for scanning, keyboard, display, etc. Access the control panels at **Start > Settings > Control Panel.**
device manager	A tool to track all loaded device drivers and their interfaces. It issues notification of the appearance, disappearance of device interfaces, loads and tracks drivers by reading and writing registry values, and unloads drivers when their devices are no longer needed.
device partnership	A registry key on a Windows CE device that a desktop computer uses to identify the device when it is connected. The key defines values for synchronization, file conversions, and backup and restore information, which enable multiple Windows CE devices to connect to the same desktop computer. A device partnership is created the first time you connect a Windows CE device to a host PC.
embedded	Broadly, software code or commands built into a device, as opposed to software that is added. In a narrower sense, code that is typically stored in ROM and dedicated to either controlling a device or providing a specific functionality.
FAST	Part of Datalogic Mobile's Falcon Management Utility (FMU) application for the Falcon that updates the operating system and applications automatically from a server using the wireless network system.
firmware	Operating System on the Falcon.

FlashFX	Persistent Flash Memory management system made by Datalight™. Data in the flash memory is retained when a battery pack is fully discharged. The backup battery must be charged to retain flash memory.
Falcon Desktop Utility (FDU)	Falcon® Desktop Utility (FDU) allows Datalogic Mobile Falcon® Windows® administrators to configure Falcon Windows® CE Falcons to control individual user access.
Falcon Management Utility (FMU)	A Datalogic Mobile Windows-based management application for managing the configuration settings and updating the operating system and applications automatically from a server using the wireless network system on the Falcon.
Firmware Update Utility (FUU)	A Datalogic Mobile Windows-based field upgradeable firmware mechanism. Use the Firmware Update Utility (FUU), described starting on page 3-7, to install or update the firmware using an ActiveSync connection.
host PC system	PC using the Microsoft Windows operating system and Falcon Management Utility (FMU) and/or ActiveSync.
IrDA	A communications protocol using an Infrared device to communicate with the Host PC.
Infrared Data Association	The industry organization of computer, component, and telecommunications vendors who have established the standards for infrared communication between computers and peripheral devices such as printers..
input method (IM)	A component that allows the user to input text using a touch screen.
input panel	Refer to soft input panel (SIP).
ISBN	International Standard Book Number. A unique number assigned to each book to allow ease of ordering from any source: local bookstore, online book dealers, or directly from the publisher. The ISBN number is usually printed on the back cover of a book near the bar code, but can also appear within the book.
ISSN	International Standard Serial Number. An ISSN consists of eight digits comprising two groups of four digits each, separated by a hyphen. The eighth digit is a check digit used as a computer validity check; it consists of a number between 0 and 9 or an uppercase X (for the arabic numeral 10).
MIB (Management Information Base)	A Management Information Base (MIB) is a file that defines a set of SNMP (Simple Network Management Protocol) variables, their types and usage. There are a number of standard MIBs available, depending on the information being managed. The MIB is used by the management tools to allow them to better support the configuration values provided on the terminals, such as scanner controls and terminal type information.

mounted file system	A file system located on a removable medium, such as a PC Card storage device. The operating system loads, or mounts, the file system when the medium is inserted into the device. It unloads, or unmounts, the file system when the medium is removed or when the user issues a command to do so.
navigation key	A large navigation button (4-way rocker key) on the keypad with 4 arrows: pointing up, down, left, and right that allows the user to move the cursor or highlighted text entry during menu selection. Press and release one edge of the key to move the display screen one line or one character in the direction of the arrow.
Network ID	Here used to mean that you should configure the Windows user settings, such as the user name, password, and domain name. Microsoft's definition includes some wireless network IDs as equivalent to SSIDs.
non-persistent state	A non-persistent state affects only the next keypress. FN state is a non-persistent state.
object store	The persistent storage that Windows CE makes available to applications. Windows CE reserves part of its available RAM for the operating system and uses the rest for the object store. This data can be stored in files, registry entries, or Windows CE databases.
portable data assistant (PDA)	A handheld Windows-based (Pocket-PC or Windows CE) computer that can be synchronized with a host PC to share files and data. Sometimes contains an infrared device to beam information to another unit.
portable data terminal (PDT)	An industrial strength handheld computer with a keypad, navigation keys, and a bar code scanner used in inventory, retail, and warehouse activities to collect data and upload it to a host PC.
persistent state	A state which is maintained after releasing a key. Alpha mode is a persistent mode. Also called a "sticky" state. A persistent state must be turned off by pressing the key again.
PRG	Product Reference Guide.
program memory	Memory that is used for stack and heap storage for both system and nonsystem applications. Nonsystem applications are taken from storage memory, uncompressed, and loaded into program memory for execution.
RF card	A small card shaped device installed in a Falcon that allows wireless connection and communication with a network.
QRG	Quick Reference Guide.
RAM (random access memory)	You can add applications and data files to RAM or into Flash memory via the FlashFX Disk. While Flash memory is persistent (as long as the backup battery is charged), RAM is not and will be cleared when you remove or replace the battery. As you can only suspend the device, the only way to turn it fully off is to remove the battery or to perform a cold reset.

ROM (read only memory)	The operating system (Windows CE) and applications are pre-installed on ROM and cannot be removed or modified. These applications are persistent.
remote access server (RAS)	A feature that connects a device to a host computer. Windows CE can connect to a remote access server using direct serial, infrared, and dial-up connections. Windows CE supports the standard Microsoft Win32 RAS functions; however, it allows only one connection at a time. RAS functions can be implemented for direct serial connections or dial-up modem connections.
RTC	Real Time Clock on the PC.
shortcut menu	A menu that is displayed for a selected object. The menu contains commands that are contextually relevant to the selection.
SNMP (Simple Network Management Protocol)	SNMP is the standard protocol for managing devices on a network. Simple Network Management Protocol (SNMP) is a standardized protocol for network management services using a client/server model. The network management program (client) issues queries and commands to the remote device
soft input panel (SIP)	Click on the **Keyboard** icon in the system tray to open the **SIP**. Use this virtual QWERTY keyboard like you would a computer's keypad to enter alpha numeric and symbols in the current application.
splash screen	An initial screen displayed by software, usually containing a logo, version information, author credits, or a copyright notice.
start	The start button opens the Start menu. The Start menu contains a list of the resident applications, applets, and utilities viable to the user.
status bar	An area that displays state information for the content in the window, typically placed at the bottom of a window.
status icons	A graphic representation of the status of a feature or function.
strap studs	The Falcon 4410 comes with a handstrap that connects to the strap studs.
stylus	The stylus is the equivalent of a mouse on the Falcon. Use the stylus on a touch-sensitive display. Only a plastic tipped stylus should be used on a touch-sensitive display. Use the stylus to navigate the touchscreen display, select characters in the soft input panel (SIP), select applications from the desktop or system tray, select tabs, fields and text within applications and dialog boxes.
suspend mode	The Falcon will go into a suspend or sleep mode when it is idle for a period of time. Suspend mode works and looks just like you have turned the unit off. Press **<Power>** to suspend (put to sleep) the Falcon. Press **<Power>** again for the Falcon to resume its previous state.

Symbology	A symbology is a protocol for arranging the bars and spaces that make up a particular kind of bar code. A bar code is made up of numbers, letters, and computer-recognized characters that can be represented in a combination of bars and spaces. There is not one standard bar code; there are currently over 400 bar code symbologies that serve different uses, industries, or geographic needs.
system tray	An area of the display screen located at the bottom, within the Task bar that displays status icons and symbols.
system tray keyboard Indicators	The System Tray Keyboard Indicators are located at the bottom of the display in the task bar and contain status icons and symbols indicating open features and active applets.
task bar	The Task bar at the bottom of the screen displays the start icon, an icon for the active program, an icon for the current character, the current time, and system icons for utilities loaded in memory, including the keyboard icon, which opens and closes the soft input panel (SIP).
toolbar	A control window that can contain buttons, combo boxes, and menu bars. Windows CE–based applications can also use a command bar rather than a separate menubar and toolbar to efficiently use available screen space.
touchscreen display	A graphical computer interface display screen that allows the user to enter and select items with a stylus.
Tracert	Trace Route. A utility/command to determine TCP/IP packet routing.
Uniform Resource Locator (URL)	The address of a resource on the Internet. URL syntax is in the form *protocol://host/localinfo*, where *protocol* specifies the means of returning the object, such as HTTP or FTP. *Host* specifies the remote location where the object resides and *localinfo* is a string, often a file name, passed to the protocol handler at the remote location. *Also called* a Uniform Resource Identifier.
USB	Universal Serial Bus is a protocol for connecting PCs with peripheral devices, including PDTs, PDAs, Falcon mobile computers, cameras, printers, mice, scanners, etc.
Web Server	The web server can perform several different actions, including generating a web page containing statistics relating to performance of the mobile computer and creating an interface for interaction with the terminal to configure system behavior.
Windows CE	As per Microsoft, Windows CE combines an advanced real-time embedded operating system with the most powerful tools for rapidly creating the next generation of smart, connected, and small-footprint devices.
XPING	XPing is a protocol that sends a message to another computer and waits for acknowledgment, often used to check if another computer on a network is reachable.

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NOTES

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